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## FESTIVAL OF THE UNITED SOCIETY.

THE second Annual Festival of the United Society of Chemists and Druggists will not be soon forgotten by those who took part in it, for owing to a wise decision of the Committee, the *réunion* had the character of a great family party. The better half of the trade was represented by a number of ladies, whose smiles put everybody in good humour, and had a magical effect upon the subscription list of the Benevolent Fund. We hail with delight this acknowledgement of Woman's Rights by the Chemists and Druggists, for we have often felt very uncomfortable at public dinners, when we have reflected upon the forlorn condition of the ladies in the balcony. In the good old wine-bibbing days, ladies could not join in the festivities; but now, we are glad to say, intemperance is out of fashion, and there is no excuse for keeping our fair Peris weeping at the gates of Paradise.

Mr. Western Wood, M.P., was an admirable chairman. He proposed each loyal and patriotic toast in an appropriate speech, and made a most eloquent appeal on behalf of those for whom the Benevolent Fund is established. He never allowed the proceedings to flag, and never lost an opportunity for making a good joke or pointing a clever epigram. In the report, which appears in another part of our Journal, the mere outline of each important speech is given, without its light and shadow and colour.

Brilliant and successful as the Festival was, its importance would have been much enhanced had all the expected guests arrived. We understand that an influential deputation from Manchester broke down at the eleventh hour, through one or two unfortunate circumstances. This deputation was to have consisted of Mr. Alderman Goadsby (Ex-Mayor of Manchester), Mr. Alderman Bowker, Mr. Gibbons the Honourary Secretary of the Manchester District Association, Mr. Slugg, Mr. Gibson, and other well-known members of the trade. The serious illness of Mrs. Goadsby was, we grieve to say, the principal cause of the absence of this important deputation.

We are sorry that the wholesale houses were not more fully represented at the Festival. A valued correspondent thinks that the time has arrived for the Society to claim the support of all the wholesale trades that are mainly dependent on the custom of the Druggists. He reminds us of the Licensed Victuallers, who lay under contribution every trade directly or indirectly employed by them, not only the Brewer and the Distiller, but even such trades as the Cooper and the Capillaire maker. Two thousand Chemists and Druggists united might offer some strong arguments to induce those who are supported by the trade to contribute something to the common charitable fund.

Though the Festival was held merely to swell the Benevolent Fund, it proved such an agreeable gathering, that we shall be surprised if those who participated in its pleasures do not get up several friendly parties before the year is out.

# ON THE PREPARATION OF ASAFŒTIDA, ETC.

BY BARNARD S. PROCTOR.

The fetid gum-resins, asafœtida, galbanum, and sagapenum, are directed by the Pharmacopœia to be prepared for medicinal use by boiling in a sufficient quantity of water to cover the lumps of gum, and, when mixed and strained, evaporating till the gum becomes hard upon cooling. There could scarcely have been devised a process more likely to deprive them of their odour and medicinal properties, which reside in great measure, if not entirely, in the essential oil.

Had we desired to produce aqua fœtida, we should have proceeded in the same manner, only condensing the vapours given off from the mixed asafœtida and water, and would reasonably have expected to find the distillate possessed of the medicinal properties of the drug operated upon; which expectation is justified by the fact that the essential oil, which constitutes about 3 to 6 per cent. of asafœtida, readily passes over with the vapour of boiling water, and, like the other essential oils, has considerable solubility. The quantity of active matter thus abstracted must be much greater in proportion than the impurities which the process is designed to remove. The present Pharmacopœia, in various of its formulæ, directs the use of these prepared gums, to the exclusion of the drugs in their natural state: it would have been much better to have directed that all samples of these articles, depending for their activity upon the volatile matters they contain, should be rejected if so impure as to require subjection to this questionable process of improvement.

Powdering and sifting will separate a considerable proportion of the ordinary impurities; but powdering is troublesome on account of its requiring a frigid temperature, unless the material has been subjected to a process of desiccation, almost as objectionable as melting and straining.

The friability of this class of bodies is much increased by the addition of a small proportion of calcined magnesia,—so much so, that they may be readily powdered at ordinary temperatures; and the powder, when obtained, has not that great tendency to agglomerate which is so troublesome in asafœtida, &c. Several samples of these gums upon which I have experimented have required from 4 to 10 per cent. of magnesia to produce the requisite degree of brittleness. The gums may be softened by water-bath heat, and the magnesia stirred in: when sufficiently mixed, and allowed to cool, they may be readily powdered.

The powder thus obtained has the full odour of the crude drug; and though, if disposed to be hypercritical, we might say that it was adulterated, it is doubtless a better preparation than that of the P. L.

Pulv. pil. galbani co. is a desideratum at the dispensing counter, and may be readily prepared with powders obtained as above. Supposing the galbanum, sagapenum, and asafœtida each to contain 5 per cent. of magnesia, the formula would stand thus:—

| | | |
|---|---|---|
| Pulv. Galbani c. Magnes. | ʒii. | gr. vi. |
| ,, Sagapeni c. Magnes. | ʒiii. | gr. ix. |
| ,, Asafœtidæ c. Magnes. | ʒi. | gr. iii. |
| ,, Myrrhæ | ʒiii. | |
| ,, Saponis | ʒij. | |

The proportion of the gums in this powder are as near as need be the same as in the Pharmacopœia pill mass, the magnesia taking the place of the treacle: consequently, when required for dispensing with essential oils or soft extracts, an equal quantity of it may be used in place of the mass prescribed.

If a pulv. pro pil. galb. co. is required, the same formula, omitting the soap, will produce it, all that is required being the addition of the soft soap and treacle when the mass is wanted; the small quantity of magnesia present being more than compensated for by the superior quality of the powders obtained by its use.

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## THE STORY OF A GREAT DISCOVERY.

In our "Notes and Queries" for January we promised to give a sketch of the history of the brilliant discovery made by our countryman, Mr. William Crookes. The story has just been told in the columns of our great contemporary so fully and so truthfully, that we will not presume to give another version. The writer signs his communication with the single letter "Y," but the clear and forcible style must be familiar to all who have studied the great work on Metallurgy which appeared two years ago:—

It may be truly affirmed that we live in a world pre-eminently metallic. The ground on which we tread is, to a large extent, compounded of metals; and the water which covers three-fourths of the earth's surface contains an element, hydrogen, which has all the chemical relations of a metal. The number of elementary bodies with which we are now acquainted exceeds sixty, and these, for the most part, are metals. In the present century twenty-seven additional metals have been discovered, and a few others have been announced on evidence which is still regarded as inconclusive. In this branch of research our own countrymen have laboured successfully. Thus, palladium and rhodium were discovered by Wollaston in 1803; iridium and osmium by Tennant, also in 1803; potassium, sodium, barium, strontium, and calcium by Davy in 1807; and, lastly, thallium, the subject of this article, by Crookes in 1861.

There are few educated persons who have not heard of the remarkable application of optical science to chemistry, for which the world is indebted to the joint labours of a chemist and a physicist, each of the highest eminence—namely, Bunsen and Kirchhoff. Every one knows that when a ray of solar light falls upon a prism of transparent glass, a spectrum is produced, which consists of a series of colours, termed prismatic, arranged in the following order of refrangibility—red, orange, yellow, green, blue, indigo, violet. Now, if the light evolved by the combustion of certain metals, instead of solar light, be allowed to fall upon a similar prism, strikingly different spectra will be formed, each metal yielding one peculiar to itself. The peculiarity consists in the suppression of certain parts of the ordinary spectrum in a greater or less degree, and the consequent development of luminous bands of different colours. Only an infinitesimal amount of a metal suffices to give a characteristic spectrum. Indeed, this means of detection by what is now termed spectrum analysis very far exceeds in refinement the most delicate chemical tests. By applying it to the light of the sun, it has been demonstrated that the solar atmosphere contains metals in the state of vapour, such as iron, nickel, chromium, potassium, sodium, calcium, magnesium, &c. The spectra of the stars have been found to differ greatly from that of the sun; but this line of inquiry is as yet very imperfectly explored.

In 1861, Mr. Crookes, of London, was occupied in examining a seleniferous deposit from a sulphuric acid chamber at Tilkerode, in the Harz mountains; and, availing himself of the new method of spectrum analysis, he found that this matter contained something which gave a totally distinct spectrum from any then known, and he consequently inferred the presence of a new element. He had only a very small quantity of material to operate on, and yet, by the exercise of skill and perseverance, he succeeded in extracting from it a metal hitherto unknown, which he exhibited at the International Exhibition last year, labelled as follows:—"Thallium, a new metallic element, discovered by means of spectrum analysis." Of the metal itself there was about five or six grains in the state of powder; but various compounds of it were also exhibited. At first Mr. Crookes was doubtful whether it belonged to the metals proper; but in September, 1861, he had become convinced of its metallic nature, and showed it to several persons as a new metal. The first publication of this fact was at the opening of the Exhibition, May 1. Of that there is no doubt. It is proper to state that two other new metals, rubidium and cæsium, had been previously detected by Bunsen and Kirchhoff by the same method of examination.

On the 16th of May, 1862, M. Lamy exhibited to a society at Lisle, in Belgium, a specimen of thallium in the form of a small fused ingot, weighing about seventy or

eighty grains. M. Lamy, who is son-in-law of the well-known chemist and chemical manufacturer Kuhlmann, had at his disposal ample means of investigation and a copious supply of raw material from the sulphuric acid chambers of his father-in-law, and he availed himself of these opportunities in a manner very creditable to himself. He adopted Mr. Crookes's original name of thallium, and thus acknowledged the claim of that gentleman as the discoverer.

Thallium receives its name from the Greek word θαλλος, a green leaf, as it produces a remarkable green band on the spectrum, suggestive of the colour of young vegetation. It has a bright metallic lustre, which it speedily loses in the atmosphere from oxidation. In colour it closely resembles cadmium, and it produces a fleeting mark on paper similar in appearance to that of black lead. It is much softer than lead, and is, indeed, the softest heavy metallic body yet discovered. It may be easily cut with a knife, and even indented with the finger-nail. It melts at a somewhat lower temperature than lead. It is volatile at a bright red heat, and burns with an intensely brilliant green light. Its specific gravity is 11·9, or a little higher than that of lead. Its atomic weight is about 203, or nearly double that of lead. It is one of the most dia-magnetic bodies known. In electric conductivity it is a little inferior to lead. It readily oxidizes by exposure to the air, but not in water deprived of air. It forms two, and perhaps three, basic oxides and an acid oxide. The protoxide is yellowish, easily fusible, volatile, soluble in water, and strongly alkaline to test paper. Many of its salts are beautifully crystallized, especially the sesquichloride, sulphate, nitrate, and chlorate. Mr. Crookes maintains that thallium belongs to the lead and silver group of metals, whereas Lamy regards it as one of the alkaline metals. This metal appears to be very widely distributed over the world, though in relatively small proportion. It chiefly occurs in the common mineral, iron pyrites, and in no ore has Mr. Crookes succeeded in finding more than ten ounces to the ton. It has been also met with in native sulphur, and in certain sulphuretted ores of mercury, zinc, cadmium, and bismuth. Many specimens of commercial copper contain it in very sensible quantity; and this is a point well deserving the attention of our great copper-smelters, as thallium renders the copper brittle and otherwise deteriorates its quality.

The discovery of thallium is highly meritorious; though some of our chemists, who have never made a similar discovery themselves, pretend the contrary. It is a bad sign when men who boast of their love of truth and singleness of purpose in the pursuit of science refuse, or even hesitate, to acknowledge merit in their fellow-labourers. Unfortunately, the scientific world, of late, has appeared to be anything rather than a happy and united family. Some combatants have specially attracted the notice of the public by the fury with which they have assailed each other. Perhaps this may be merely a particular Darwinian era in the development of the scientific race. Hereafter the brethren will dwell together in unity and peace.

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## ON COPAIVA PILLS.

BY JNO. M. MAISCH.*

Copaiva has been known and employed in medicine for about two hundred years; its use in the various stages of gonorrhœa, however, is not nearly as old, and dates back only to the latter half of the eighteenth century. It has been for a long time given in the pure state, swimming upon water or mixed with a sufficient quantity of sugar to disguise to a certain extent its disagreeable taste. Its property of being emulsionized by the yolk of eggs and by mucilage of gum arabic, was afterwards considered quite a progress, as it was possible to cover and modify the odour and taste to a great degree by the addition of aromatics, ethers and bitter medicines.

For a long time it was considered nearly impossible to obtain a combination of copaiva

* From the *American Journal of Pharmacy*.

possessing sufficient adhesiveness to allow its exhibition in the form of pills. This difficulty is owing to the larger quantity of volatile oil which is present in this natural oleo-resin, a good copaiva containing from 30 to 50 per cent of it. This carbohydrogen is most probably the principal, if not the only active ingredient of copaiva, the medicinal activity of the hard resin, the copaivic acid, being, according to the observations with which I am acquainted, nearly destitute of any beneficial effects in the diseases for which copaiva is employed. It would therefore appear, that with the increase of the proportion of the volatile oil, copaiva must become more valuable as a medicine. The largest quantity of volatile oil was observed by Ulex of Hamburg in 1852, in which year a copaiva was imported at that place from Para, containing only 10 per cent. of resin, having a specific gravity of ·928 and being, notwithstanding, not nearly as thin as might have been expected (Archiv d. Ph. 1853, Jan.). Prof. Procter found 80 per cent of volatile oil in a Para copaiva. (See Am. Journ. Ph. 1850, 292).

The first attempts for the formation of pill masses containing copaiva as their principal ingredient, were made with vegetable powders and mucilage. With great difficulty a mass may be formed and divided into pills, but it is the nature of the volatile oils to gradually sweat out upon the surface, causing the pills to become sticky, and to fix upon them much of the powder in which they are kept; thus the pills will increase in size; or on the other hand, if the powder possesses little adhesiveness, like lycopodium, it will absorb the exuded oil and the pills will become proportionately weaker.

Such vegetable powders which are very absorbent, are best adapted for the formation of proper pill masses, and powdered marshmallow and liquorice root would deserve attention in this respect, if thereby the bulk of the medicine was not so largely increased. The Pharmacopœias of Hamburg and of Slesvic-Holstein direct equal weights of copaiva and althæa powder to be formed into two grain pills, so that from fifteen to thirty pills would constitute a dose. Augustin in his Pharmacopœia extemporanea, Berlin, 1822, directs equal weights of powdered gum arabic and rhubarb with a sufficient quantity of copaiva, to be made into four grain pills; aside from the variable quantity of copaiva necessary for obtaining a proper pill mass, the gum arabic cannot in this case be considered an excipient, as it will absorb much less oil than the rhubarb and the above two powders, and because it will not impart the least adhesiveness to the mass, unless Geisler's suggestions, made in 1840, are followed, and the gum arabic is used, not in the form of powder, but as a thick mucilage; the addition of an absorbent powder will serve then a good purpose. The following formula has been in use in the Hôpital des Vénériens at Paris: Copaivæ ʒiij, Pulv. acaciæ ʒi., Pulv. glycyrrhizæ q. s., Aquæ q. s. ut ft. boli No. xx. While each bolus contains only six grs. of copaiva, its size is very considerable and objectionable for this reason.

Many combinations have been suggested for forming copaiva into masses adapted for boli, which may be considered as less difficult to prepare, because a somewhat softer mass may be employed than for pills. But the use of conserves and electuaries for this purpose, which was first suggested, is by no means adapted, as the oily portion will soon separate, there being no proper emulgens present. Much better is the employment of absorbing powders, and if the nature of the case will admit, some astringent like catechu or kino, together with a thick mucilage as excipient. A tolerably good mass is obtained according to Pierquin's suggestion (Mémorial Pharmaceutique, Montpell. 1824,) by the use of soap, in the proportion of eight to five of copaiva, to which he advises the addition of powdered catechu in sufficient quantity.

Cadet de Gassicourt recommended in his Formulaire magistral, Paris, 1826, the addition of one part of magnesia to twenty-one parts of copaiva. This method of forming it into a suitable pill mass appears to have attracted but very little attention until Mialhe advised in the *Journ. de Chim. Méd.* Mars, 1828, the solidification of copaiva by the addition of 1-16th magnesia. The cause of this solidification was, I believe, first shown by Elias Durand to be the hard resin of copaiva, which from its properties, has received the name of copaivic acid. (See *Journ. of the Phil. Coll. of Pharm.* i. 3.) The combinations formed by this resinous acid in its pure state with the

alkalies, earths, and metallic oxides, were studied by J. F. Gerber in 1829, his researches being published in Archiv der Pharmacie, vol. xxx.

A similar compound has been already recommended by Godefroy in the *Journ. de Pharm.* June, 1825, where he recommends the preparation of a soda-soap from copaiva, which, however, evidently contains but little of the volatile oil, it being partly expelled by the heat employed for effecting the combination.

A loss of volatile oil is likewise incurred by solidifying copaiva by Thierry's method, with freshly prepared hydrate of lime. (*Journ. de Pharm.* April, 1842). He uses one part to fifteen parts of the eleo-resin, and exposes the mixture to the temperature of a water bath for four or five hours, until the mass has assumed a pillular consistence; the loss he states to be one-eighth of the weight of the copaiva employed, which is by far too considerable to be overlooked, and it is even probable, that Para copaiva containing much volatile oil, must lose much more before a proper consistence is attained.

The solidification of copaiva with magnesia takes place in the space of a day or two, but requires occasionally several weeks, and sometimes even the evaporation of a portion of the volatile oil, which does not combine with bases. To overcome this difficulty it had been proposed to the Paris Société de Pharmacie to mix such a copaiva with 1-6th turpentine; it was even stated that if adulterated with 1-20th of castor oil, the addition of 1-5th of turpentine would cause it to solidify with 1-16th magnesia. In his report upon this subject, and upon the probable adulteration of copaiva with turpentine, Guibourt (See *Journ. de Pharm.* xvi. 562, and *Journ. of Phil. Coll. Pharm.* iii. 39,) states that turpentine does not form a pillular mass with 1-16th of magnesia, but that it requires about one-eighth of this base, and that consequently turpentine cannot be used for promoting the solidification of copaiva, unless the magnesia is at the same time increased.

An increase of Mialhe's quantity of magnesia will likewise facilitate the hardening of copaiva. The *Pharmacopœia Gallica* of 1828, edited by Ratier and Henry, contains a pill mass made of equal parts of these ingredients; and Mohr, in Geiger's Pharmacopœia Universalis, gives the following direction for Pilulæ copaivæ magistrales: ℞. Copaivæ unc. unam, Magnesiæ ustæ drach. sex ad septem, f. l. a. pillulæ.

Copaiva pills made by Mialhe's process are officinal in the United States Pharmacopœia. As the mixture hardens very slowly, and cannot be rolled into pills without their flattening, while the mass is still pliant at ordinary temperature, it is customary to keep the solidified copaiva on hand, and form it into pills whenever needed. The application of a moderate heat is then necessary to render the more or less brittle mass sufficiently soft. But, notwithstanding all the precautions adopted on the part of the pharmaceutist, these pills are almost always of a less elegant finish than all those which have adhesiveness imparted to them by an excipient which is not of a resinous nature. A change of temperature will either render them very brittle, or soften them and cause their flattening. But even aside from these considerations, it appears questionable whether these pills deserve a place in the Pharmacopœia among the permanent preparations.

Even if we admit that the copaivic acid is destitute of medicinal properties, and that copaiva, therefore, is not altered in its nature, simply by the admixture of some magnesia, it cannot be doubted that the volatile oil is gradually altered by continued contact with the atmosphere in the presence of a base. It is at least a property of most volatile oils, that their tendency to resinify is augmented by contact with alkalies. Solidified copaiva, as it occurs in commerce, possesses most generally but little odor and taste, and I have met with sugar-coated copaiva pills which were as tasteless as white wax or rosin. It appears as if the commercial article was hardened by distilling off nearly all the volatile oil. So-called solidifiable copaiva contains but little volatile oil, but a large proportion of copaivic acid; for this reason alone it cannot be but less active than Para copaiva; if made into a mass with magnesia, it will be found to gradually become weaker in odour, and of a less pungent taste, and after some time the quantity of the volatile oil will be found to have materially diminished.

Physicians are aware, I should suppose, that the officinal copaiva pills, when old, are by far less reliable than copaiva itself: but I think the fault has been more generally ascribed to the form of the medicine or to the presence of the resin soap than to the causes as above stated, which appear to me the rational ones. I have always observed, and been informed on inquiry, that copaiva is used in considerable quantities in the form of mixtures, while the officinal pills are employed but very rarely.

It may often be desirable to give copaiva in the form of pills, but it seems more proper to leave it to the physician, who may direct an extemporaneous preparation in which copaiva may be combined with other medicines adapted to the case. In directing a pill mass, however, the physician must not expect the impossible of the pharmaceutist, who cannot furnish pills containing five or six grains of copaiva, rich in volatile oil, except by increasing their size to such a degree as to make boli.

For extemporaneous prescriptions, a proper pill mass may be formed of copaiva by mixing it with a sufficient quantity of magnesia, of which about an equal weight will be necessary; if very poor in copaivic acid, no proper consistence can be obtained; and if not objectionable, a small portion, about five or ten per cent. of Canada or true Venice turpentine may be ordered as an addition; a portion of the magnesia may be substituted by one or more vegetable powders, like catechu, kino, rhubarb, cubebs, opium, &c. Such a combination involves less trouble in the preparation of the pills, than with the entire absence of a base, and the powders present are in nearly sufficient quantity to prevent the volatile oil from partially separating upon the surface.

A much better pill mass is formed by the addition of some spermaceti, as proposed by Geiseler, or of wax as recommended by J. Francis Simon about twenty years ago. Particularly the latter has the advantage of retaining the whole of the volatile oil, and with the further addition of vegetable powder to remain in a plastic condition for years. A little wax does not in the least interfere with the medicinal action of the oleoresin; but the disadvantage is the number of pills required for a single dose, in which respect, however, this is not inferior to other extemporaneous forms of copaiva pills.

If the copaiva does not contain too large a proportion of essential oil, say not over 50 per cent., the quantity of copaiva may be one-third of the weight of the mass, while the wax must not be decreased to less than one-ninth. Simon has given the following proportions of wax, copaiva and vegetable powder each furnishing a good pill mass: 1 : 1 : 1; 1 : 1½ : 2; 1 : 2 : 3; 1 : 2½ : 4; 1 : 3 : 5. The same weight of any of these five mixtures contains one-third of copaiva, only the relative proportions of wax and vegetable powder are changed.

With copaiva containing a large amount of volatile oil, the first and second proportion will make good masses which are somewhat soft, but the pills retain their shape and no copaiva is separated; but when the wax is decreased to less than one-half of the weight of copaiva, the volatile oil is likely to separate partially upon the surface.

From a good copaiva containing more than 50 per cent. of volatile oil a good pill mass may be obtained with the following proportions, wherein the wax has been reduced to the smallest possible quantity: Wax one part, copaiva 2 parts, powdered cubebs (or some other vegetable powder) 3½ to 4 p. The Hamburg Pharmacopœia of 1845, directs 2, 4 and 8 parts respectively for the Pillulæ copaivæ compositæ. In Germany, where such a combination is frequently prescribed, it is customary to roll the pills in some aromatic powder, like powdered cinnamon, which disguises the disagreeable odor and taste of copaiva. As stated before, such pills will retain their plastic condition for years; and the volatile oil, being protected by the wax and the powder, shows less tendency to change by oxidation, as may be inferred from the odour and taste of the pills after they had been made several years.

The manipulation in preparing these pills is as follows:—The wax is fused at a moderate heat, the copaiva is now gradually added, and immediately afterwards the powder is stirred into the warm mixture in small portions and well incorporated. The mass is then ready for rolling out and cutting into pills. It is, of course, requisite, during the incorporation of the ingredients, to keep the mass at as low a temperature as is possible

for avoiding a loss of the volatile oil; but it must be sufficiently high to prevent the wax from congealing before the operation is completed. Some pharmaceutists fuse together equal parts of wax and copaiva, and keep this mixture on hand. It answers admirably, if the addition of much copaiva is not required for the prescription; the oleoresin, it seems, does not combine so intimately with the wax in the cold as in the warm state, and the pills are therefore likely to sweat.

It deserves also to be mentioned, that the pills are not so large as might be judged from their weight; the wax decreases the bulk to a certain extent.

These extemporaneous copaiva pills are, I believe, almost totally unknown in the United States; but I am convinced that physicians, after they have once tried them, will find them superior to the solidified copaiva as usually kept; and the pharmaceutists will be able to dispense the pills of this medicine as of others, of even size, perfectly globular and retaining their original shape. From these considerations, I have frequently recommended them to physicians, who have generally been satisfied with the result; and while connected with Parrish's School of Pharmacy, I had them prepared by all the classes. These pills deserve to be more extensively known and employed.

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## ON THE USE OF GLYCERINE IN SURGERY AND MEDICINE.

BY E. J. TILT, M.D., M.R.C.P.*

Glycerine is not sufficiently valued in this country as a therapeutical agent; whereas the high estimation in which it is held on the continent may be inferred from the fact, that from 1851 to 1861 the annual consumption of glycerine in the Paris hospitals rose from 300 lbs. to 3000 lbs. I propose to point out the principal advantages of glycerine from personal experience, and from that of an eminent Paris surgeon, M. Demarquay, who has been chiefly instrumental in introducing this agent, and has just published the results of his experience in an interesting little work. In the process of making lead plaster, glycerine is produced; but, as it contains lead, it has an irritating action on abraded surfaces. The only glycerine, therefore, fit for medical and surgical uses is Price's, which is made by subjecting palm oil to steam raised to a temperature of 300° centigrade, and its specific gravity should be 1·26.

Glycerine is too well known to require description. Although derived from fatty substances, it will not combine with them, but mixes with water in any proportion, and has the power of dissolving all our active therapeutical agents about as readily as weak alcohol.

*Pure glycerine.*—In household surgery, glycerine is known as the best remedy for chapped hands and slight irritation of the face and lips. I have found it invaluable when freely used in nasal, pudendal, and anal irritation. It is applied in a large number of skin diseases in France; and Maisonneuve, Denonvilliers, and Demarquay use it to dress ulcers and wounds, instead of cerate. It appears to have antiseptic properties, inasmuch as it speedily gives a healthy appearance to foul, unhealthy, and even pultaceous-looking wounds. This is admitted by Baron Larrey, whose report is in, other respects, unfavourable to its use in surgery. Indeed, this antiseptic property might be inferred from its preserving from decomposition meat and microscopic objects that are kept in it, or have been steeped in it.

*Liniments.*—Glycerine does not become rancid, like oil. It is cleaner, can be easily washed off, and does not stain the body-linen like oil. Though glycerine does not dissolve fat, it is said to dissolve the sebaceous product of the skin, and thereby to facilitate the absorption of the various ingredients which it may hold in solution. For these reasons, glycerine is far preferable to oil as a basis for liniments.

*Lotions.*—Since Mr. Startin has praised glycerine as a useful ingredient of lotions for the skin, this has been fully admitted. Its stability, cleanliness, innocuousness, and

* Extracted from the *Lancet*, April 4.

antiseptic properties make it a valuable ingredient for all the variety of lotions which are applied to the inflamed or to the unhealthy mucous membranes of the mouth, eyes, nose ears, rectum, and vagina.

*Ointments.*—When starch is boiled in glycerine the membranes burst and uniformly thicken the liquid. If eighty grains of starch are boiled in one fluid ounce of glycerine, a moderately stiff and tenacious plasma or ointment is the result. It is stable, inodorous, clean, and is capable of holding in solution or suspension all the agents usually incorporated with lard. Glycerine ointment does not become rancid like other fatty substances, does not soil the body-linen, and can be instantaneously removed by means of a damp towel.

Mr. Bullock, of Hanover-street, has made experiments of combining glycerine with several kinds of starch, and I lately exhibited the samples at a meeting of the Obstetrical Society. Every kind of starch makes a very serviceable product, but maize and the ordinary starch seem to give the stiffest and most satisfactory result.

It has been objected to glycerine ointment that it is too absorbent of moisture to be useful; but this is not true. It absorbs moisture only to a limited extent—suggesting to the pharmaceutist the advisability of not making a large quantity at a time, and of keeping it closely covered up.

Glycerine ointment has been used in France under the name of *Glycerat d'amidon*. It has been extensively prescribed by my friend Mr. Henry Lee, and by Dr. Symonds and Dr. W. Budd, of Clifton. Mr. Schacht, of the same town, wrote a paper on the subject, which will be found in the *Pharmaceutical Journal* for 1858. For the pelvic and spinal pains attendant on uterine inflammation I frequently prescribe the following ointments :—Sulphate of atropia, two grains; glycerine, half a drachm; oil of neroli, four drops; glycerine ointment, one ounce. A portion of this ointment, about the size of a small walnut, is to be well rubbed in, night and morning. Acetate of morphia, ten grains; otto of roses, one drop; glycerine, half a drachm; glycerine ointment, one ounce.

*Plasters.*—It occurred to me that by boiling a large quantity of starch in the same quantity of glycerine, the ointment might become stiff enough for all the purposes of plasters. Mr. Bullock therefore boiled 100 to 150 grains of starch in an ounce of glycerine, and obtained a very firm and tenacious compound, to which I have directed attention, in my *Handbook of Uterine Therapeutics*, as well calculated to make ready-made plasters, not open to the objections raised against those in common use, which either do not stick at all, or stick so firmly that their removal is difficult. Some of them also smell so disagreeable as to interfere with a patient's sleep, while others cause a skin irritation which was not desired. With the glycerine plasters, the patient may continue using the sponge bath or any other bath that may be advisable, as there is no difficulty in removing and replacing the application. This hard glycerine ointment is capable of holding, partly in solution, partly in suspension, all the ingredients of the plasters now in use. It can be made softer by being rubbed up with a little glycerine, and I tell the patient to spread it thickly with a paper-knife on gutta percha cloth, or on the fluffy side of leather, or on impermeable wash leather. Before re-applying the plaster it is well to spread a little more ointment, and they can be speedily cleaned with a sponge and tepid water. Thus, instead of prescribing a belladonna plaster, I order—Sulphate of atropia, four grains; otto of roses, one drop; hard glycerine ointment, one ounce; the salt is to be rubbed down with a few drops of glycerine and incorporated with the ointment. I give veratria in the same proportion, and double the quantity of morphia. The following compound sedative plaster can be made in the same manner :—Sulphate of atropia, three grains; veratria, three grains; sulphate of morphia, eight grains; otto of roses, one drop; hard glycerine ointment, one ounce.

*Medicinal Use of Glycerine.*—It is said to be useful in dysentery, and its antiseptic properties justify its trial in cases of ulceration and inflammation of the stomach and intestines. Experience has not confirmed the assertions of those who affirm that it acts on the system like cod-liver oil.

## ON LIQUID RENNET, OR RENNET WINE.

BY WILLIAM PROCTER, JUNR.*

It has long been known that the mucous coat of the stomach of the calf, pig, and other young mammals possesses the power of coagulating the casein of milk, as in the making of cheese; but it is only of latter years that attempts have been made to introduce a solution of *rennet*, as this substance is called, into pharmacy with a view to the *cuisine*, as well as for use in medicine. For several years *pepsin*, the proximate principle to which this coagulating power is attributed, in an impure state, has been an article of commerce with a view to medicinal use in diabetes and other diseases; that prepared by M. Boudalt, of Paris, having acquired some celebrity.

In several pharmaceutical works, recipes for making "Liquid Rennet" may be found, but these vary much, both as regards the strength of the solution and the preservative ingredients. The dried stomach of the calf prepared by salting it, and stretching it over a bent hoop to facilitate its desiccation, is familiarly known in the markets of Philadelphia under the name of rennet, and most housekeepers prefer to keep and use it in this state, or by cutting this up and macerating it in wine; but for those who aim at manufacturing the solution for commerce, it is preferable to employ the recent membranes, both on account of economy and efficiency.

Pepsin has never been isolated in a state of purity; it seems to be secreted by glands located in the mucous coat of the stomach, and in connexion with hydrochloric, and perhaps lactic acid, constitutes the active portion of what is called the *gastric juice*, concerned in the process of digestion. It is to this mucous coat of the organ, therefore, that attention must be given; and inasmuch as the rennet tends to exercise its digestive power on the membrane itself, there is a propriety in using mechanical means to effect the rupture of the mucous coating to facilitate the extraction of the active principle without cutting it up, by malaxating them in water with salt, to which weak alcohol or wine is subsequently added. Some prefer at once to separate by the knife the mucous coat with the glands, but generally the whole organ is cut up, mixed with salt and water, and well malaxated at intervals, for a time varying from twenty-four hours to two months. Soubeiran gives the following recipe as that of Wislin:—He takes of the stomachs of young calves, *ten* parts; chloride of sodium, *three* parts; alcohol of 80 per cent., *one* part; and water, *sixteen* parts. The stomachs are slit with a scissors so as to expose the interior, they having been previously gently rinsed to remove foreign particles adherent; they are then malaxated with the dry salt thoroughly, and left in a cool place until the cheesy odour at first apparent, becomes replaced by that of rennet, which requires one or two months. At this period it is macerated in the water for a short time, the alcohol is added, and the liquid portion strained off and filtered for use.

Dorvault, in his *L'Officine*, gives the following recipe:—"Take of recent rennet, 375 parts; common salt, 60 parts; alcohol of 75 per cent., 60 parts; white wine, 1,000 parts. Digest the whole for a month, and filter. A teaspoonful is sufficient for a quart of milk."

Some believe that the rennet during the protracted process of curing by salt is rendered more active, and that it is necessary to delay the final process of solution until after that operation; but this is doubtless incorrect in fact, though it may seem to be true, as the truth lies more in the mechanical effect of salting in breaking or causing the shrinking of the tissue, and in altering the resistant or pulpy condition of the mucus, than in any development of increased power; and hence there appears to be no good reason why it should be protracted beyond a few days, unless with the intention of curing the rennets for future use. After several trials the following is offered as a practicable formula for making

LIQUID RENNET, OR RENNET WINE.

| | |
|---|---|
| Take of Fresh Rennets (about three) | Twenty-four troy ounces. |
| Chloride of Sodium . . | Three troy ounces. |

* From the *American Journal of Pharmacy.*

| | |
|---|---|
| Alcohol . . . . | Six fluid ounces. |
| White wine . . . | Sixteen fluid ounces. |
| Water. . . . . | A sufficient quantity. |

Having turned the rennets inside out, and washed them by a gentle stream of water for a few moments without any friction, and having placed them in a shallow dish, sprinkle half of the salt over them, and with the hands malaxate them vigorously for fifteen minutes, aiming to disengage the mucous secretion; then add a pint of water, again malaxate, and after standing several hours strain off the thick mucilaginous liquid by pressure in a loose-textured cotton cloth. Return the rennets to the dish, sprinkle on the remainder of the salt, again repeat the process of malaxation, maceration, and expression. Let these operations be repeated a third time, or until the fluid obtained measures forty-two fluid ounces; then, having mixed the alcohol with the wine, add them to the expressed liquid, and agitate the mixture several times at intervals of an hour or two; after which allow it to stand until the mucus which is precipitated by the alcoholic addition subsides, when the nearly clear solution of rennet may be drawn off with a syphon and filtered for use. The wine may be substituted by a mixture of one part of alcohol and three parts of water. A tablespoonful of this solution readily coagulates a quart of milk to a firm curd, if added after gently warming the milk (to about 100° F.), stirrring it well for a moment, and allowing it to stand undisturbed for half an hour or an hour. *Cold custard* is made in the same manner by previously adding a tablespoonful or more of sugar, and some vanilla or other flavouring before adding the rennet. When liquid rennet is employed for medicinal purposes, it is preferable to make it with wine, as being more acceptable to the stomach.

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### FLAME COLOURS.

Our deservedly popular contemporary, the *Intellectual Observer*, describes a mode of exhibiting the characteristic flames of the metals which is admirably adapted for the lecture-table. *Gun-paper*, made in the same way as gun-cotton, is to be soaked in solutions of the chlorates of the different metals, dried with care, and kept dry. A good gun-paper for the purpose is prepared by soaking strips of Swedish filtering-paper for ten minutes in a mixture of four parts of oil of vitriol with five parts of strong nitric acid, both by measure. The strips, when taken out of the acid, should be washed first with cold, and then with hot rain or distilled water, till the washings are no longer sour to the taste. The solutions of the metallic salts neeed not be very strong; but if they are warm, the strips of gun-paper will be more easily and completely saturated with them. Since some of the chlorates attract moisture from the air, it is better to dry the papers prepared with them before the fire previous to lighting them. They are shown to best advantage when a strip is loosely crumpled up into a pellet, lighted quickly at one corner, and thrown up into the air against a dark background. They leave after burning, if properly prepared, no ash whatever. Paper prepared with the salt of potash gives a flash of violet flame, that prepared with the soda salt the characteristic yellow flame, and that with chlorate of baryta a very beautiful green light. The chlorates of strontia, lithia, and lime, when thus ignited, give intense colours. The violet-blue flame of copper is well seen, even with the chloride of that metal, while paper

soaked in nitrate of potash shows the flame better than if the chlorate be used. Gun-paper prepared with a very weak solution of chloride or chlorate of thallium shows the characteristic sprig-green flame of that metal with great distinctness. Chlorate of baryta, being an article of commerce, may be employed for the preparation of the other chlorates, it being merely necessary to add to this salt in solution an exactly equivalent quantity of the *sulphate* or *carbonate* of the metal whose chlorate is desired. For instance, in order to make chlorate of copper 15·1 grains of chlorate of baryta being dissolved in hot distilled water, a boiling solution containing 12·5 grains of pure crystallized sulphate of copper is to be added to it. Insoluble white sulphate of baryta falls, while the solution, filtered and evaporated, yields the new chlorate in crystals. For information respecting other methods of exhibiting the coloured flames, we must refer our readers to the pages of our contemporary.*

### PREPARATION OF PURE PEPSINE.†

Pepsine may be precipitated from its solution by agitation with cholesterine, phosphate of lime, or even animal charcoal; dissolved in water containing phosphoric acid, it may even be precipitated by neutralizing with lime-water: it is then contained in the precipitate of phosphate of lime, though not in a state of combination.

Upon these facts M. Brucke has based a new method of preparing this important substance, by which it may be obtained in a remarkable state of purity.

The mucous membranes of the stomachs of pigs are digested at a temperature of 38° C. in weak phosphoric acid; when portions of the membranes are seen detached, the solution is filtered off, and the residue digested again at the same temperature in a fresh portion of the acid until the membranes are completely disintegrated. The filtered liquid should be limpid, and ferrocyanide of potassium should not precipitate albumen from it. Lime-water is added till it is nearly neutralized, or till it gives but a faint acid reaction, with litmus paper; the phosphate of lime is then collected, pressed, and dissolved in water acidulated with hydrochloric acid. It is then precipitated again by lime-water, again taken up by very dilute hydrochloric acid, and filtered. Into the large flask in which this solution is contained a long-necked funnel is introduced, and by it is added gradually, and in small portions, a cold solution of cholesterine in a mixture of four parts alcohol, at 94 p. c., and one part ether. In contact with the acid liquid, the cholesterine separates in fine particles and rises to the surface; when this coagulum has acquired a thickness of about two centimètres, the funnel is withdrawn, and the mixture vigorously shaken, to fix as much pepsine as possible on the cholesterine; it is then filtered off and washed with water containing hydrochloric acid, then with pure water, until the washings cease to precipitate nitrate of silver. It is then treated with ether; the cholesterine dissolves, and the adherent water retains the pepsine, and forms a lower layer, which is washed with ether by decantation; it is then filtered if necessary, and a pure solution of pepsine is the result. This liquid, when acidulated, possesses energetic digestive properties; a filament of fibrine disappears at once in it, and one drop added to five cubic centimètres of a solution containing one gramme of HCl in a litre of water dissolves a filament of fibrine in the space of an hour. This liquid does not furnish the reactions hitherto considered characteristic of pepsine. It is not affected by any of the reagents which denote the presence of albumen, as concentrated nitric acid, tincture of iodine, tannin, and bichloride of mercury. The latter point is one of great importance, as the pepsine analysed by M. Schmidt was prepared by precipitation with bichloride of mercury. Nitrate of silver renders the liquid slightly opalescent. Bichloride of platinum gives a slight precipitate. It is abundantly precipitated by the acetates of lead, which throw it down even in presence of free acetic acid. The author therefore considers that pepsine has not hitherto been obtained in a state of purity; its analysis has still to be made, and its composition ascertained.

### SIMPLE CHEMICAL BALANCE.

At a recent meeting of the Leeds Chemists' Association, Mr. E. Thompson read a

* *Intellectual Observer* for April, No. XV. † *Pharm. Journ.*

paper "On a Cheap and Accurate Chemical Balance," illustrating it by an instrument which he had constructed. The beam is simply a long bar of light wood, about eighteen inches long; the fulcrum and supports are formed from pieces of thermometer tubing. At one end is a permanent leaden counterpoise, and at the other the single scale pan employed. All weighings are conducted upon the principle of substitution, the counterpoise and substance to be weighed being first brought to a state of relative equilibrium, and then the latter removed from the scale, into which weights are put until the equilibrium is again restored.

Mr. Thompson said that his practical experience of the balance during the past three years enabled him to assert that it was reliable for taking specific gravities, and the various operations of commercial and pharmaceutical analysis. He decidedly preferred light wood for the material of the beam to glass or other proposed substitutes. The instrument was one which every apprentice could construct for himself.

### DESULPHURATION OF IRON IN PUDDLING.

The inferior quality of bar-iron obtained from the puddling of pig-iron reduced from ores rich in sulphur, or even from good ores when reduced with coal containing much pyrites, is well known to ironmasters, and many methods have been devised for the desulphuration of this iron in the puddling process. Among the best of these is the addition of binoxide of manganese; still, this is liable to objection, as the oxide, being infusible, cannot be thoroughly incorporated with the iron: moreover, it often contains impurities which possibly may be taken up by the iron in the puddling process, and influence unfavourably the quality of the bar-iron produced. The subject has recently been studied by the Austrian chemist Professor Richter, who has called to mind the powerful oxidizing effect of litharge (oxide of lead) in many metallurgical processes. On experimentally testing the powers of litharge, he found that it would not only remove sulphur in the puddling process, but, what is equally important, it would oxidize the phosphorus contained in the iron. It would appear, therefore, that in the use of litharge the ironmaster has a most simple means of stopping two great sources of annoyance.

### COMA AND SLEEP.—CHLOROFORM.

At the last sitting of the French Academy of Sciences, M. Flourens read a paper on the distinction between the state of coma produced by a meningite, or inflammation of the membranes of the brain, and the sleep caused by chloroform. He remarked that in the former state the animal was under the influence of complete prostration, but did not sleep; that it kept its eyes shut, but would open them on the slightest occasion; that it could see, hear, and feel, and was constantly shivering. In its natural state the dog's pulse is between 100 and 120 per minute, and it breathes from 20 to 30 times per minute. During coma the pulse does not exceed 90, and it breathes 24 times. But the animal which is under the influence of chloroform really sleeps; it snores and does not open its eyes; it can neither see, hear, nor feel; the pulse is at 60, and it breathes 16 times per minute. The brain of the animal which has died of coma is all covered with red spots, a mark of congestion; the brain of the animal that dies of chloroform has no red spots, the vessels of the dura-mater alone being gorged with blood. Hence, in the case of coma, the congestion is intra-cerebral; in the case of chloroform, extra-cerebral. "This should, therefore," M. Flourens concludes, "serve as a caution to those who apply chloroform, since from an extra-cerebral congestion to an intra-cerebral one there is but a step."

### ACTION OF SULPHURIC ACID UPON LEAD.

Messrs. T. Crace Calvert and R. Johnson have lately been engaged upon a series of experiments to ascertain whether the opinion generally held respecting the diminished action of acids on metals in proportion to their purity is really correct or not as regards lead. They justly thought that it might be interesting in a scientific point of view, as well as practically useful, to study the action of acids, and especially that of sulphuric acid, upon some of the leads of commerce, which, as is well known, are largely employed

in the construction of those immense chambers in which sulphuric acid is manufactured. The results of their experiments leave no doubt that the purer the lead, the more it is attacked. "The experiments," to quote the words of the authors, "were all repeated many times; we varied the surfaces of lead, the quantities of acid, the temperature, the duration of action, and, in fact, all the conditions of the experiments; and yet we always obtained similar results, from which we draw the following conclusions:—

First, and this is the principal point to which we invite the attention of scientific as well as practical men. Of the various kinds of lead existing in commerce, the purer they are the more they are acted upon by the sulphuric acid. Lead chemically pure is more acted upon than any of the others.

2. Although it is stated in many chemical works that sulphuric acid only acts sensibly upon lead at a temperature above 383°, our experiments tend to prove the contrary, since we find that acid of sp. gr. 1·842 dissolves *cold* 67, 134, and even 201 grammes of lead per square metre of surface; and, in another instance, that acid of sp. gr. 1·705 takes from the same surface 54, 56, and 59 grammes of lead at a temperature of about 120° only.

3. Finally, the action of sulphuric acid upon lead appears, at least, when there is no continuous agitation of the mass, not to increase in proportion to the quantity of acid employed. This is probably due to the formation of a layer of sulphate of lead, which protects to a great extent the surface from further action by the acid."*

The analyses made appear to point to *tin* as the metal which enables the impure lead to resist the action of sulphuric acid. To discover whether tin is really the protecting metal, and in what proportions it should exist in the mixture, is the object of a new set of experiments, upon which the authors are now engaged.

### OXALIC ACID FROM SAWDUST.

At the last Pharmaceutical Meeting, Edinburgh, Dr. Murray Thomson, F.R.S.E., read a paper on Mr. Dale's new method for the manufacture of oxalic acid.† The idea of making oxalic acid by acting on sawdust with an alkali was not quite new on the part of Mr. Dale, as in 1829 M. Gay-Lussac published a memoir, in which he announced that M. Vauquelin had converted pectic acid into oxalic acid, by heating the former along with caustic potass in a crucible. M. Gay-Lussac followed up this discovery by a number of experiments, in which he demonstrated that when a number of substances were treated with potass they yielded oxalic acid. Among the substances he tried were cotton, sugar, starch, and gum. Any of them, when heated with caustic potass or soda, gave off hydrogen gas, while the mixture charred; and at length oxalate of potass or soda was found in the black residue, and could easily be dissolved out of it.

Gay-Lussac also tried a number of the vegetable acids, and showed that these might be converted into oxalic acid without charring of the mixture ensuing, and on that circumstance he tried to form an explanation of the process.

But although the memoir of Gay-Lussac had been published for twenty years, no one had proposed using it as a source of oxalic acid on the large scale until Mr. Dale did two or three years ago. And although Gay-Lussac was the first to broach this method of making oxalic acid, it must not be thought that his memoir showed a way by which this result might be obtained free of obstacles; for Mr. Dale found that there were more than one practical difficulty to be overcome before he reached a successful issue. One of the chief of these was that Mr. Dale did not find that sawdust, when heated with caustic soda, was converted into oxalate of soda, as Gay-Lussac would imply. He says that soda or potass may be used indifferently, but Mr. Dale found that with soda sawdust yielded almost no oxalic acid; while, on the other hand, he was precluded from using potass on the large scale on account of its high price, though he was quite successful when he used it. At last this difficulty was overcome by using a mixture of soda and potass, in the proportion of two equivalents of the former to one of the latter; and this, it was found, was as effective as potass alone. The practical details of the process are as follows:—

* *Mechanic's Magazine.* † Reported in *Pharm. Journal.*

1. The alkalies, mixed in the above proportion, are dissolved, and solution evaporated until of specific gravity 1·35; sawdust is now stirred in until a thick paste results.

2. This paste is then heated on iron plates, during which it is constantly stirred; water is first given off; the mass then swells; inflammable gases, hydrogen and carburetted hydrogen, are evolved, along with a peculiar aromatic odour. When the temperature has been maintained at 400° for one or two hours, this stage of the process is complete; the mass has now a dark colour, and contains only 1 to 4 per cent. of oxalic acid, and about 0·5 per cent. of formic. The bulk, therefore, of the mass at this stage consists of a substance whose nature is not yet known, but which is intermediate between the cellulose and oxalic acid.

3. The next stage consists in a simple extension of the last, in which the mass is heated till quite dry, care being taken that no charring takes place. It now contains the maximum quantity of oxalic acid, 28 to 30 per cent.

4. This oxalic acid is now combined with both potass and soda in the grey powder resulting from stage 3. This powder is now washed on a filter with solution of carbonate of soda, which seems to have the singular and unexpected power of decomposing the oxalate of potass, and converting it into oxalate of soda. At all events, it is quite true that all traces of potass are washed out with the solution of carbonate of soda. The only explanation that occurs to account for this unusual decomposition is that oxalate of soda is a more insoluble salt than oxalate of potass, and therefore may be formed by preference.

5. This oxalate of soda is now decomposed by boiling milk of lime. Oxalate of lime falls as a precipitate, and soda remains in solution. This soda is boiled down, and again made use of with fresh sawdust. This recovery of alkali is also practised with the potass salt which filters through in the last stage.

6. The oxalate of lime is now decomposed in leaden vessels with sulphuric acid. Sulphate of lime is precipitated, and oxalic acid is in solution, which is now evaporated, and the acid separates in crystals, which now need only to be recrystallized to make them quite pure, and fit the acid for all the purposes for which it is employed.

By this ingenious process 2 lb. of sawdust are made to yield 1 lb. of oxalic acid, and the amount of acid which can be turned out in a week amounts to 9 tons; but the works of Messrs. Roberts, Dale, and Co. (near Manchester) could make nearly double that amount. This amount is more than half of all the oxalic acid which is reckoned to be used all over the world. The process also has so much cheapened the price of oxalic acid, that in 1851 it sold for 16*d.* per pound, and now it only costs from 8*d.* and 9*d.* per lb.

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## REVIEWS.

*A Systematic Handbook of Volumetric Analysis; or, the Quantitative Estimation of Chemical Substances by Measure. Adapted to the Requirements of pure Chemical Research, Pathological Chemistry, Pharmacy, Metallurgy, Manufacturing Chemistry, etc., and for the Valuation of Substances used in Commerce, Agriculture, and the Arts.* By Francis Sutton, F.C.S., Professor of Practical Chemistry, Norwich. John Churchill and Sons. 7*s.* 6*d.*

Gay-Lussac was the first to use the graduated measure in quantitative analysis. He showed that accurate results could be arrived at by observing certain characteristic reactions produced by measured bulks of test-solutions of known strength. He specially recommended the adoption of the volumetric method in the determination of the economic value of the chemical agents used in manufactures, as being more simple and much more rapid than the usual method of analysis. The germ thus planted by the sagacious

French chemist has grown into a most extensive system. The want of a methodical treatise upon volumetric analysis has long been felt in England by manufacturers and students, and Mr. Sutton's admirable text-book will be most thankfully received. It is just what was wanted,—a thoroughly practical guide to volumetry, written by one who has experimentally tested the accuracy of the various processes.

"The necessities of the present day," writes Mr. Sutton, "require that analytical investigations should be directed into many channels hitherto open only to the purely scientific chemist; but I doubt not that the introduction of the simpler and more expeditions methods of determination comprised in volumetric analysis will, in some measure, put it within the power of the educated pharmaceutical chemist or chemical manufacturer to exercise this power either for his own or others' benefit, and thus leave the man of science to follow the higher paths of that vast territory yet open to genius." Again in another passage the author refers to the comparative simplicity of the volumetric method; "The determinations can mostly be made with simple and inexpensive apparatus, and are within the reach of any well-informed medical man or Pharmaceutical Chemist; the latter of whom, in provincial districts, ought to be able to estimate the value of a sample of alkali, bleaching-powder, or manganese, or determine the principal constituents of water, urine, manures, or soils, when called upon to do so." We hope that Mr. Sutton uses the term "Pharmaceutical Chemist" in a wider sense than the legal one, for his book will be used by many clever Chemists and Druggists whose names are not on the books of the Pharmaceutical Society.

The following extract from the Introduction will give the uninitiated an idea of the principle of volumetric analysis:—

"Volumetric analysis, or quantitative chemical analysis by measure, depends upon the following conditions for its successful practice:—

"1. A solution of the re-agent or test, the chemical power of which is accurately known.

"2. A graduated vessel from which portions of it may be accurately delivered.

"3. The decomposition which the test-solution produces with any given substance must be of such a character that its termination is unmistakable to the eye, and thereby the quantity of the substance with which it has combined accurately determined.

"Suppose, for instance, that it is desirable to know the quantity of pure silver contained in a shilling. The coin is first dissolved in nitric acid, by which means a bluish solution, containing silver, copper, and probably other metals, is obtained. It is a known fact that chlorine combines with silver in the presence of other metals to form chloride of silver, which is insoluble in nitric acid. The proportions in which the combination takes place are 35·46 of chlorine to every 108 of silver; consequently, if a standard solution of pure chloride of sodium is prepared by dissolving 58·46 grains of the salt (*i.e.*, 1 eq. sodium = 23, 1 eq. chlorine = 35·46 = 1 eq. chloride of sodium, 58·46) in so much distilled water as will make up exactly 1000 grains by measure, every single grain of this solution will combine with 0·108 grains of pure silver to form chloride of silver, which precipitates to the bottom of the vessel in which the mixture is made. In the process of adding the salt solution to the silver, drop by drop, a point is at last reached when the precipitate ceases to form. Here the process must stop. On looking carefully at the graduated vessel from which the standard solution has been used, the operator sees at once the number of grains which have been necessary to produce the complete decomposition. For example, suppose the quantity used was 520 grains; all that is necessary to be done is to multiply 0·108 grains by 520, which shows the amount of pure silver present to be 56·16 grains.

"This method of determining the quantity of silver in any given solution occupies scarcely a quarter of an hour, whereas the estimation by weighing could not be done in half a day, and even then not so accurately as by the volumetric method. It must be understood that there are certain necessary precautions in conducting the above process which I have not described; those will be found in their proper place;

but from this example it will at once be seen that the saving of time and trouble, as compared with the older methods of analysis, is immense: beside which, in the majority of instances in which it can be applied, it is equally accurate, in many cases much more so. For technical purposes, such as the examination of substances used in arts and manufactures, the system has been a great boon, and every day is bringing fresh applications of it both to pure and applied chemical science.

"The only condition on which the volumetric system of analysis can be carried on successfully is that the greatest care is exercised with respect to the graduation of the measuring instruments, and the strength and purity of the standard solutions. A very slight error in the analytical process becomes considerably magnified when calculated for pounds, hundredweights, or tons of the substance tested.

"The end of the operation in this method of analysis is in all cases made apparent to the eye. In alkalimetry it is the change of colour produced in litmus, turmeric, or other sensitive vegetable colouring matter; the formation of a permanent precipitate, as in the estimation of cyanogen; a precipitate ceasing to form, as in chlorine and silver determinations; the appearance of a distinct colour, as in iron analysis by permanganate solution; and so on."

Mr. Sutton devotes considerable space to the analysis of Pharmaceutical substances and preparations, and gives a list of articles whose purity may be ascertained by his methods. In treating of the analysis of soils he draws largely with due acknowledgment from the valuable articles contributed to our journal by Dr. Noad.

The book is well printed, and illustrated with numerous woodcuts—is neatly bound, and consists of nearly 300 pages.

*A Dictionary of Chemistry, etc.* By HENRY WATTS, B.A., F.C.S. Part II. Ammonium—Arsenic. Longmans. *5s.*

In this number about eighty closely-printed pages are devoted to articles on Analysis. The paper on "Inorganic Analysis" is from the pen of Mr. F. T. Conington; that on "Organic Analysis" is by the learned editor; that on the "Volumetric Analysis of Liquids and Solids" is contributed by Mr. William Dittmar; and that on the "Volumetric Analysis of Gases," by Dr. William J. Russell. Each article is a highly-finished treatise on a great department of research. To give our readers an idea of the magnitude of this work, we may mention that for the treatment of Antimony and its compounds between thirty and forty pages are required.


## DR. JOULE'S NEW SENSITIVE THERMOMETER.

At the last meeting of the Manchester Philosophical Society, Dr. Joule described a new thermometer of such exquisite sensibility as to be capable of being affected by the heat radiated from the moon. It consists of a glass tube, closed at both ends, two feet in length by four inches in diameter, divided longitudinally by a blackened pasteboard diaphragm, extending to within an inch of the two ends. In the upper space so left, a piece of magnetized sewing needle, furnished with an index, is suspended by a single filament of silk.

It is evident that the slightest increase of temperature on one side will occasion an expansion of the air on that side, which will consequently ascend, and, after passing across and affecting the index, will descend on the other side. So exquisitely delicate is this instrument, that it indicates the heat given out by a pint of warm water at a distance of three yards, and it is also able to detect the heat radiated by the moon; for as a beam of moonlight admitted through an aperture in a shutter was allowed to pass across the instrument, the needle was deflected several degrees, first to one side and then to the

other. This instrument at once so simple and so delicate, promises to be of extreme use in many thermometrical and meteorological experiments, and, in general, in all sciences where the observation of slight difference of temperature is of importance.

## RIMMEL'S PERFUME FOUNTAIN.

We have frequently had occasion to notice the elegant inventions of Mr. Rimmel. Those now under review fully maintain the prestige of the house for great ingenuity in the design of new articles of luxury.

The perfume fountain is an exceedingly ingenious application of the hydrostatic fountain. When filled with perfumed water, it plays for at least an hour, and forms a most elegant adjunct to the drawing-room, ball-room, or dinner-table.

The great drawback to the table fountains hitherto in use has arisen from the fact that they contain a certain amount of machinery that is always liable to derangement, and consequently requires repair. The fountain of Mr. Rimmel, on the contrary, contains absolutely no machinery whatever: water has simply to be poured in the upper basin, when the force derived from its descent into the lower part causes the jet to play.

There is no part that can get out of order except from actual breakage, and there is no doubt but that one of these elegant little appendages might be used to diffuse its sweet odours daily for ten years, and act as effectively at the end as at the commencement of the decade.

We should think this likely to meet with a very wide popularity, equalling if not exceeding the elegant perfuming vaporizer of the same house.

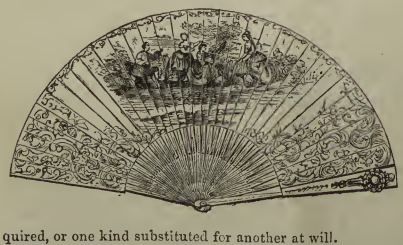
## RIMMEL'S TURKISH SCENTED CHARM.


In the present mania for wearing charms of all sorts, from ugly old coins to foxes' teeth, little images of skulls, and other absurdities, we should think that a charm possessed of some utility would be well received: hence this elegant little ornament, which contains a very permanent and refreshing scent, is likely to meet with a large sale.

The singular-looking cipher on the back is the fac-simile of the signature of the Sultan of Turkey, similar to that employed instead of his portrait on the Turkish postage-stamps, the Mahomedan religion forbidding the delineation of the human form.

## RIMMEL'S CASSOLETTE FAN.

This is one of the prettiest articles *de luxe* that have been issued for some time. It combines, in a form most convenient for use, a fan and a smelling-bottle, the latter being contained in the small ornamental rosette on the outer side. The perfume-holder is so light as to offer no impediment to the use of the instrument, whilst it is large enough to hold a quantity of scent sufficient to last for some time. And it admits of being opened, so that the scent can be replaced as required, or one kind substituted for another at will.



Articles of perfumery form so important a portion of the stock of many of our subscribers, that we have much pleasure in bringing these elegant contrivances under their notice.

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Mr. Squire, the President of the Pharmaceutical Society of Great Britain, who has held during the present reign the appointment of Chemist on Her Majesty's Establishment, has recently received a similar appointment on the Household of His Royal Highness the Prince of Wales.


## THE UNITED SOCIETY OF CHEMISTS AND DRUGGISTS.

### FESTIVAL AT THE FREEMASONS' TAVERN.

THE Second Annual Festival of this growing Society was held at the Freemasons' Tavern on Tuesday evening, the 9th inst., Mr. Western Wood, M.P., occupying the chair. He was extremely well supported by the Vice-President and a large number of the active members of the Society. The presence of numerous lady-guests gave to the great hall an unusually brilliant effect, and largely contributed to the sociality of the evening.

The company, to the number of about 160, sat down to dinner, which was very well served; and after the usual loyal and patriotic toasts, including "The Army, Navy, and Volunteers," which was very effectively responded to by Mr. Jonathan Potter,

The Chairman said: I now come to the toast of the evening. I congratulate the Society upon having performed wonders with very small means. Your annual subscription is small indeed, and how you get on I cannot tell, unless you dispense out your charity in homœopathic doses; but I must seriously and from my heart express my great surprise at your having got on so well in so short a time. I know from experience that there are great difficulties in your way, but I also know that you will overcome them. (Cheers.) When I look at your list, I am pleased to find that it has gradually grown and grown. This is only the second year of your existence, and you may fairly hope that in due time the general body of the trade will join you. Upon the present occasion we have met to perform an act of charity, and I know that you will all respond to the call which will shortly be made upon you. (Cheers.) I feel assured that you will all induce your friends to subscribe to a society of so useful a character as is this. In conclusion, I have only to add that I am always only too glad to drink "Success to the Benevolent Fund for the whole of the trade." Toast drunk with all honours, upstanding.

Mr. Buott, the Secretary, then read the list of subscriptions, which proved that the Chairman's appeal had not been made in vain. Mr. Buott, after having read the subscription list, briefly touched upon the unavoidable absence of the Manchester deputation. He stated that the subscription list would not be closed for a day or two; and as some of the deputation would probably be up to the Conference on Friday, the members could hand in their subscriptions then. (Cheers and laughter.)

The announcement that the Chairman had generously contributed ten guineas, and had persuaded a friend (Mr. Edwards, of St. Paul's-churchyard) to give a similar sum, was received with a burst of applause. The names of the lady-donors were most enthusiastically cheered. One gentleman, wishing "to do good by stealth," had signed himself "Salts and Senna," and when Mr. Buott read out this sobriquet there was considerable laughter. "The CHEMIST AND DRUGGIST, two guineas, in addition to the former contribution of £100," was also very warmly received.

The Chairman then gave the next toast—"Success to the United Society of Chemists and Druggists," connecting it with the name of Mr. Alfred Preston, one of the Vice-Presidents.

Mr. Alfred Preston returned thanks, and said: I shall not detain you long, but I must urge upon you the necessity of keeping up amongst ourselves the title of the Society. (Cheers.) In a short period—say two years—we have obtained 2,000 members, and I hope we shall go on until we embrace the whole trade. (Great cheers.) When we first started, all went very well, and we had hoped that another society would have amicably joined us. (Cheers.) Gentlemen, I am not going to say anything about that society on the present occasion; but as its leading members have thought fit to feel offended at what we are doing, we must get along as well as we can without that body until they are more friendly. The Society is yet young; and as soon as we get well to work, I do not think any of the trade will refuse to join us. (Cheers.)

The Chairman then proposed "The Union of the Trade." It was a matter in which they must all feel great interest, and he urged upon the Society the necessity of carrying out the great objects which it had in view. He would not repeat the well-worn saying about Union, but he would thus briefly drink "The Union of the Trade," without even dwelling upon the great union just mentioned by the Secretary, namely, "Salts and Senna." (Cheers and laughter).

The Chairman called upon Mr. Wade to respond.

Mr. Wade, in an eloquent speech, referred to the break-down of the Manchester express—(laughter)—at the same time expressing a hope that it would reach London at some period, and bring with it a handsome donation. (Cheers.) Yes, he (Mr. Wade) did hope to see the trade united, and he would just look at the figures and show how far they had gone. There were 4,500 members of the trade in the United Kingdom, and already 2,000 had joined the Society—(cheers)—while the Pharmaceutical Society had but 1,000 members.

A voice: Only 800 through examination.

Mr. Wade: Then I will put it at 1,000. We in the brief space of our existence have exceeded their numbers by more than double. As there is a Cyrus Field in America endeavouring to unite, though unsuccessfully, the continents of Europe and America, so is our Cyrus Buott uniting successfully the two branches of the trade; and there never had been, in the history of Chemists and Druggists, such rapid progress towards Union. There had been too much "old coaching," therefore make way for the Manchester express, which would arrive quickly. He heartily co-operated with their Manchester friends, and they would have had a hearty welcome had they been present.

The toast of "The Vice-Presidents and Executive" was replied to by Mr. Matthews, F.C.S., who shortly stated that they had commenced with two members, and now numbered 2,000, and perhaps more. Perhaps no society was so well supported by any trade as was this in a singularly brief period.

Mr. Wood then gave the names of "Messrs. Burgoyne and Burbidge, and the Wholesale Trade." (Cheers.) He was glad to learn that a great trade was carried on abroad, and that we largely exported. He wished that the whole trade was an export one, but unfortunately we must have our salts and our senna. (Great laughter.)

The toast being duly responded to,

Mr. Buott, sen., proposed the health of their Chairman, and in doing so dwelt upon the ready, courteous, and considerate manner in which he had assisted the Committee in their recent endeavours to obtain exemption from jury service for the whole of the Chemists and Druggists. He (Mr. Buott) did not know when he had sat under a chairman who passed over matters in so pleasant and, at the same time, business-like a manner. He (Mr. Buott) could enlarge upon this subject to any extent, but he felt that it was now getting late, and so he would conclude by proposing the health of the chairman. (Cheers).

The Chairman, in responding, said he had to attend a great many dinners at times, and it was not always convenient. He felt, however, great pleasure in presiding this evening over this Society's festival, and he had to thank the ladies personally for their attendance. He would not say anything more about his endeavours, because the Society and all present knew that he meant what he said, and it did not need any reiteration. He could only wish the Society every prosperity, and trusted that he should hear of the safe arrival of the Manchester express with a large bag of money. (Cheers and laughter.) Mr. Wood then alluded briefly to his services in the House of Commons. Those services had up to the present been unproductive of any good result, nor could he hold out any hopes for the future. He had endeavoured to obtain for the Chemists and Druggists generally a favour granted to members of the Pharmaceutical Society. That favour was exemption from serving on juries; but when he mentioned that the number of the trade was over 35,000, he was met with "Bless me! we cannot do without them. They are intelligent and educated men, and we cannot part with 35,000 such jurymen all at once." That was the feeling, but he (the Chairman) did not mean to relax his endeavours to obtain for the trade that to which they were most undoubtedly entitled. (Cheers). He would not hold out any vain hopes, but he could only say that his services both in Parliament and out of it were at the disposal of this Society. (Great cheering.) He would, before he sat down, call attention to the services of the Press. This Society owed something to the Press, and would willingly repay the debt by charging to the brim.

Mr. John Hollingshead, in returning thanks, reminded his hearers that the Press was a secret institution, not to be lightly talked about by those connected with it. In that very room a young writer had once ventured to divulge the secrets of his paper, but he paid dearly for his imprudence. Nothing had been heard of him since, but popular rumour connected the Waterloo-bridge mystery with his disappearance. He (Mr. Hollingshead) was glad to see the progress of trade literature. Every trade had now its special organ, and he thought the Chemists and Druggists had reason to be proud of their little journal, which was so ably edited by Mr. Brough.

In deference to a call for the Editor of the CHEMIST AND DRUGGIST, Mr. J. C. Brough nervously got upon his legs, and in a few incoherent sentences tried to persuade his hearers that he merely represented that estimable but mysterious personage to whom all

communications were addressed.* Being evidently unaccustomed to public speaking, he essayed public singing, and managed to put every one in a good humour by a terrible story concerning the family of a most respectable Chemist and Druggist.

Mr. Robertson, in a very humorous manner, then drew attention to the great neglect of one of their most important toasts, namely "The Ladies," whose presence had so largely contributed to the festivity of the evening. Some excitement was caused by other claimants for this toast.

Other toasts having been duly honoured, the pleasures of the evening were concluded.

The musical arrangements were excellent; Mrs. Alexander Newton, Mr. Ransford, and Mr. Watson discoursing some popular songs, and Master Aldridge performing a solo on the flute, and fairly "bringing down the house:" he is certainly superior to any boy now in this country. Mr. Toole, as usual, made a capital toast-master, and the dinner generally passed off in a most satisfactory manner.

## LAW AND CRIME.

### THE ARSENICAL POISININGS AT MAREHAM-LE-FEN.

On the 16th inst., John Garner and Elizabeth, his wife, were arraigned before Mr. Justice Willes, at Lincoln, charged with having murdered Hannah Garner, the first wife of the male prisoner on the 28th of March, and Jemima Garner, the mother of the male prisoner, on the 20th of December, 1861.

Mr. Fitzjames Stephen, the Hon. Chandos Leigh, and Mr. Mellor appeared for the Crown; and Mr. Serjeant O'Brien, Mr. Flowers, and Mr. Huish for the prisoners.

The prisoners pleaded Not Guilty, and were first tried for the murder of Jemima Garner.

The facts of the case admit of being condensed into a very narrow compass. The male prisoner occupied a small quantity of land at Mareham, and also kept a beer-shop and a grocer's shop, in the latter of which he kept arsenic, which he was in the habit of selling to the neighbouring farmers. The female prisoner was his second wife, and the deceased woman, Jemima Garner, his mother. There was ample evidence that a former wife of John Garner, named Hannah, had died under suspicious circumstances, while Elizabeth —then Elizabeth Whittaker—was living in the house as servant, and on terms of intimacy with her master. The relevancy of this evidence depends on the further fact that both John and Elizabeth were fully aware that the death had occasioned remark, and during the subsequent illness of Jemima Garner alluded between themselves to the rumours of foul play which were in circulation. The symptoms of both illnesses were those of arsenical poisoning, and the fits of sickness came on after the taking of food prepared by Elizabeth. The family of a Mrs. Shepherd, against whom Elizabeth had a violent grudge, suffered in the same manner after drinking some milk sent by her; and so ominously similar had been the effects on other persons of tasting what Elizabeth had intended for either Hannah Garner or Mrs. Shepherd, that the bodies of the former and of Jemima Garner were at last exhumed. Large quantities of arsenic were detected, especially in that of Jemima. Meanwhile, a drawer containing enough arsenic mixed with arrowroot to kill fifty people was found on John Garner's premises, and it was proved that expressions had been used both by him and Elizabeth which amounted to little less than an admission of their guilt. The only favourable evidence elicited in cross-examination went to show that the male prisoner was kind to his mother, except when drunk, and quarrelled with Elizabeth after her death, though they were married within a few months.

Mr. Justice Willes, in summing up the evidence, told the jury that they might find either one or both of the prisoners guilty of murder or manslaughter. If the arsenic was given by either one or both of the prisoners with intention to kill, then one or both were guilty of murder. If the arsenic was taken by and through the culpable and criminal negligence of one or both, then one or both were guilty of manslaughter.

The jury found both the prisoners Guilty of Manslaughter.

The learned Judge, in sentencing the prisoners, said that the jury had taken a very merciful view of their case, but that he felt bound to pass upon them the severest sentence of the law. His Lordship then sentenced them to penal servitude for life.

A contemporary makes the following comments upon this case:—"To any ordinary mind, the probability of the two having conspired to murder Jemima Garner must surely appear equal to a moral certainty. She was undoubtedly poisoned with arsenic in a house occupied by the prisoners only, both of whom had often exhibited ill-will towards her. John Garner not only had arsenic in his possession, and was in the habit of selling it, but was found to have mixed it with arrowroot. Elizabeth Garner was actually overheard to threaten her husband that she would poison Mrs. Shepherd if he kept company

* We notice that this sentence is in the handwriting of the speaker.—PRINTER'S DEVIL.

with her, while she talked on other occasions in a way which showed that she was perfectly on her guard. How are all these appearances to be reconciled with the idea of 'negligence?' and why should this alternative have been suggested to the jury from the bench? The proper task of the judge is not to read over the evidence and recapitulate the speeches of counsel, as is too often done, but to analyse the one and to criticise the other. This is what Mr. Justice Wightman did in the Maidstone case, and we can hardly doubt that if he had summed up at Lincoln there would have been no failure of justice. The least sign of vacillation in a judge gives the jury an excuse for shirking a most painful duty; and when they have returned an illogical verdict of manslaughter, the matter is not mended by passing an equally illogical sentence of penal servitude for life."

### THE CASE OF ARSENICAL POISONING AT BRIGHTON.

At Brighton, on the 26th inst., William Sturt, a house-painter, was placed at the bar before the Lord Chief Justice, and indicted for the wilful murder of Mary Ann Day, a widow to whom he had promised marriage. There could be no doubt that the unhappy woman had met her death through the effects of arsenic, and the case upon the part of the prosecution was that the prisoner had put the poison into a mince pie, which he admitted having purchased for her. The evidence was so inconclusive and contradictory, and the summing up of the judge so favourable to the prisoner, that the jury returned a verdict of Not Guilty, without quitting the box. Dr. Taylor's evidence will doubtless interest many of our readers, and we therefore give it in a condensed form.

Dr. Taylor stated the results of his analysis of the stomach and contents, and also of the liver and spleen. On opening the stomach he found extensive inflammation through the whole of the inner membrane. Every part was inflamed, and the central portion of the membrane was entirely destroyed, so that the greater part of it actually came away in flakes. He preserved and presented in court a portion of the contents in a small bottle, with a white sediment at the bottom. Some of this white sediment he tested, and found it to be white arsenic,—altogether, as he estimated, from three to five grains; three grains he actually obtained and scraped off from the surface of the stomach, which he presented in court. There were numerous clots of blood on the surface of the stomach, showing that the blood had been secreted by some great cause of irritation; and he examined them, and found arsenic therein, and also in the coats of the stomach, which were very much inflamed and destroyed. Vomiting and purging would carry away a great part of the arsenic taken. The estimate he had given of solid arsenic found excluded all that was in the intestines, &c. He actually obtained three grains of solid arsenic, and two grains were fatal to human life. His estimate of the quantity in the stomach alone was five grains. The quantity taken must have been large to account for the quantity found. Looking at the appearances, especially of the stomach, he was decidedly of opinion that the death was caused by arsenic. There was no natural disease which could produce such appearances. Supposing a large dose taken about 20 minutes to 12, the symptoms would commence in half an hour if the stomach was empty. And with reference to the fact of the woman not having eaten anything beyond a bit of bread for a day or so before, that would account for the rapid and destructive action of the poison in this case. The time of operation would vary from half an huor to an hour. Supposing she had taken the poison on the Saturday night, the symptoms might have shown themselves earlier. The stomach being empty, there would be nothing to prevent the absorption of the arsenic. In conclusion, the Professor said he never knew in all his experience a clearer case of death by arsenic. It was a fact that white arsenic was largely used and sold in agricultural counties for destroying vermin and steeping corn in to destroy the spores. He had also analysed the mincemeat preserved, and found no trace of arsenic or any irritant poison. Turmeric (used by the pastrycook for colouring Bath buns) was quite harmless, and a vegetable root. Cross-examined from his own book Dr. Taylor stated that there were exceptional cases, one of which he had himself recorded, in which the poison had worked a little sooner or later. In one case, for instance, where the arsenic had been taken in lumps, it had been longer in operating, because it could not be dissolved easily in that state. But in this case he was of opinion that the arsenic had been taken in the state of an undissolved powder, for he had actually found it so. Hence it could not have been taken in perfect solution. The operation of the poison would depend a good deal on the state of the stomach. Arsenic was not easily dissolved in liquid. There were cases of 2 hours, 10, or even 20; but they were exceptional. There was no absolute rule to be laid down on the subject. It was, in his opinion, however, perfectly impossible that so large a dose of arsenic as he had found in this case should not have operated in half an hour or so. The fact that the woman was given to drinking would make the operation more rapid. The period of death from arsenic varied in different cases. The earliest known was four hours. In

his book he said the average period was 24 hours; but it varied from 18 hours to three days. Intemperate habits and functional derangement might materially affect the power of absorption and the period of death, and he should think that it would accelerate the action of the poison after absorption. In a person of intemperate habits possibly the absorption might be slower, but when absorption had once begun its action would be rapid. In his book he stated that most of the colours used by confectioners were poisonous, and orpiment, or sulphate of arsenic, had sometimes been mistaken for turmeric. He had heard of deaths occurring from such causes; but here the arsenic he found was white, and it must have been always white, for it was its natural colour. If there were any colouring matter in the arsenic, it would have retained its colour as long as it was arsenic. White arsenic had been mistaken for other substances; as, for plaster of Paris, used for adulteration. This had occurred in the celebrated Bradford case, where 100 persons were so poisoned. Orpiment, being a combination of sulphur and arsenic, remained yellow. He had found orpiment in the stomach unaltered in colour 24 months after death. The white arsenic in time became yellow from the action of the substances of the body; but yellow arsenic would never become white.—Re-examined: Supposing the poison were taken about 20 minutes to 12, and the first purging about 10 minutes to 1 o'clock, that would be quite consistent with his scientific knowledge as to the time when arsenic would operate.

A witness was called who proved that white arsenic was largely sold in Sussex for sheep-dipping. He sold it to the flockmasters, who sent their servants for it. It was not used in this country for steeping wheat. Sulphate of copper was used in this country for that purpose.

### PERJURY BY A SURGEON.

At the assizes at Liverpool, on the 28th ult., Evan Thomas, a surgeon, of Manchester, was tried for perjury. The offence had been committed in a deposition made by the prisoner before the Manchester City Coroner, at an inquest held on the body of a widow named Bell. Mrs. Bell had come from Cockermouth, and was met by the prisoner at the railway-station at Manchester. He conducted her to the Cathedral Hotel, and spent a few minutes with her there. She was then very well. Next morning she was very unwell, and Thomas visited her. When he entered the room he locked the door, and shortly afterwards came out saying that Mrs. Bell was dead. At the inquest on the body he swore that he had not known her before, that she had a tumour in the womb, and that death had been caused by epilepsy. Her friends at Cockermouth subsequently caused an inquiry to be made, when it came out that Thomas had known and written to the deceased some months previously. Another post-mortem examination was held, when it was discovered that there was no tumour in the womb, that the deceased was pregnant, and that, although the appearances were not inconsistent with death from epilepsy, the prisoner had never examined the brain to ascertain if there were epileptic symptoms. The statement made by him previously was thus shown to be false, and he was indicted for perjury. He was found guilty, and sentenced to three months' imprisonment, the judge expressing his opinion that the prisoner had carried on an illicit amour with the deceased.

### A SURGICAL INSTRUMENT MAKER CONVICTED OF FELONY.

On the 10th inst., at the Central Criminal Court, Thomas Wollams, a surgical instrument maker of Tottenham-court-road, was indicted for feloniously receiving one piece of oilcloth and ninty-six catheters, value 30*s.*, and divers other goods, the property of David Lang, well knowing the same to have been stolen.

The prosecutor carries on business as a surgical-instrument maker on an extensive scale at Skinner-street, Snow-hill. A man named Pettit had been in his employment for a considerable length of time as a confidential and general managing agent, and he, having succeeded during that time in purloining an immense quantity of the property, was tried at the last sessions of this Court and sentenced to five years' imprisonment. The system he pursued was to take away the articles to meet a man named Bruneau, and another named Alexander Crochevoix, at dinner time daily, and to get them to sell the goods on his behalf. Bruneau and his accomplice had also been indicted for receiving the property knowing it to be stolen, and they had been convicted and sentenced, the one to nine, and the other to twelve months' imprisonment. During the time that these cases were being investigated, it was discovered by the police that some of the stolen property, to a very large amount, had been conveyed by Bruneau to the house of the prisoner, who was a surgical instrument maker in Tottenham-court-road. On one occasion the prisoner was seen to receive two parcels of what was believed to be the stolen goods from Bruneau. Subsequently, when interrogated upon the subject, he denied that he had received any such parcels, but afterwards he admitted that he had

purchased an oilskin. This particular skin was identified by the prosecutor as his property, and so also were several catheters, the purchase of which the prisoner had further acknowledged. Additional property was found upon the premises, upon some of which the prosecutor's private marks were plainly observable. It was, moreover, proved that the prisoner had purchased some of the goods at a cost far below their value, paying, for instance, 12*s.* a gross for articles worth treble that amount. For the defence, several witnesses were called to prove that many of the articles found in the prisoner's house and identified by the prosecutor as his property, were purchased from parties who never had had the slightest connexion with the robberies from Mr. Lang. Some of these witnesses bore testimony to the excellent character of the prisoner. The jury, however, returned a verdict of guilty, and the Common Serjeant sentenced the prisoner to be kept in penal servitude for seven years.

### BOND'S MARKING INK.

At the Lord Mayor's Court (before the Recorder and a special jury), on Monday, the 13th inst., Mrs. Bond claimed £6,000 compensation from the Corporation of the City of London, who required her premises in Long-lane for the new dead-meat market and its approaches. Mrs. Bond had for many years carried on her very extensive business at 28, Long-lane, and there her average profits for the past four years were £1,713. She spent £153 per annum in advertising her business at the Long-lane house. She had removed to 10, Bishopsgate-street, and it would be a very considerable time before she would be well known and established there. It was stated in the course of the case that there were two other Bonds in England besides the plaintiff: one was a son and the other a daughter of the late Mr. Bond by his first wife, and they resided and carried on business in Hoxton. They claimed to be proprietors of the late Mr. Bond's invention, and were anxious, it was alleged, to cut into Mrs. Bond's trade, so that her compulsory removal and alteration of address were dangerous to her trade. She had been known in Long-lane for fifty years. After a longthened investigation, the jury awarded plaintiff £1,033 damages.

## GOSSIP.

Several persons, who had gone to the shop of Mr. Fisher, Druggist, of Goodramgate, York, to purchase cream of tartar, were taken seriously ill, when it was found that tartar emetic had been supplied to them by mistake. It appears that the error arose with a wholesale house from which Mr. Fisher had received his drugs. The *Pharm. Journ.* is our authority for this strange story.

Steven's machine for making bread, which has been introduced into France, has received the approbation of the Syndics of La Boulangerie. The Government authorities, moreover, have appointed a commission to report on its merits, and the Minister of Commerce has sanctioned its free importation into France.

It is stated that the first representation of a new piece has just been given at Hamburg, in which the female dancers appeared in green costumes to represent water-nymphs. The stuff of which these costumes were made contained such a quantity of arsenic, that the needlewomen who made the dresses all fell ill, and the dancers were attacked with violent symptoms of poisoning whilst on the stage.

## GAZETTE.

### BANKRUPTS.

Coster, George, and James Milnes, Bolton-le-Moors, manufacturing chemists.
Curfew, John, Hyde, Cheshire, druggist.
Down, Kelland, Craven-street, City-road.
Hayes, Charles, Great College-street, Camden-town, perfumer.
James, William, York-place, Upper Mitcham, assistant to a chemist.
Millar, Alexander, Claremont-square, chemist.
Penicud, John, De Beauvoir-terrace, Kingsland, chemist.

### PARTNERSHIPS DISSOLVED.

Freeman and Horn, Steward-street, Goswell-street, drug grinders.
Knight, J., and Co., Widnes, Lancashire, animal charcoal manufacturers.
Lyon, Grundy, and Co., Wigan and elsewhere, manufacturing chemists.
Matthews and Co., Birmingham, manufacturing perfumers.
Mountain and Taylor, Wakefield, chemists.
Pierce, W. M. and Co., East Ham, Essex, animal charcoal manufacturers.
Wells, Brothers, Tonbridge, Kent, chemists.


ANNUAL MEETING OF THE UNITED SOCIETY OF CHEMISTS AND DRUGGISTS.

13th April, 1863.

SIR,—Will you allow me to state that the Annual Meeting of this Society will take place at the London Coffee House, Ludgate-hill, on Saturday the 2nd of May, at two o'clock in the afternoon precisely. The Committee are anxious to obtain the utmost publicity for this notice, and regret that economical motives prevent their sending a postal intimation to each member of the Society.

I am, sir,
Yours most obediently,
C. F. BUOTT, Secretary.

THE ARSENIC TEST.

SIR,—It is to be regretted that those engaged in scientific investigation should find cause for contention, and with a desire to pour oil on the troubled waters I again call your attention to this subject. Having, in the presence of a medical man and several others, carefully put in practice Mr. Horsley's method for detecting arsenite copper in green paper, I deem it justice to that gentleman to bear testimony to the delicacy, facility, and certainty of the test, and have no doubt, but that any person with the most ordinary care in manipulation will not fail to detect the 1-500,000th part of a grain, as asserted. With this conviction, I have been induced to make this communication, and only desire that others will be induced to try the experiment, and thus satisfy themselves — ever remembering that to criminate and re-criminate never yet was the road to reconciliation.

I am, sir,
Your obedient servant. PAX.

PHARMACEUTICAL SEVERITY.

1, Jubilee-place, Commercial-road, East.
March, 1863.

SIR,—Thinking you would like to be made acquainted with the recent doings of the Pharmaceutical Society, I take the liberty of trespassing upon your space with a short personal narrative. Just prior to Christmas I purchased the business of one of their members, and not wishing to risk a severe frost damaging my fresh paint, I resolved not to do anything to the front of my premises until about May. Circumstances, however, came to my knowledge which made me, in fact, alter that decision, and I accordingly ordered a painter to erase the name of my predecessor.

My shop is a corner one, and over the front facial of the door, which forms an angle, were the words "Member of the Royal Society of Pharmacy," and "Dispensing Chemist" on the side angle or facial. Domestic affliction calling me away from home, I was in the act of going out at the side door, when the painter, pointing to the words "Dispensing Chemist" asked if I wanted them painted out, to which I replied "No, they will do for me," and in my absence my name was written up. While this was being done, the Registrar of the Society, who also it appears enacts the dignified part of common informer in ordinary, called and asked after my predecessor. Soon after, he informed me by letter that I had incurred a penalty of £5 for using the title, &c., but as the Society supposed I had done it ignorantly, they would not press the penalty, if I removed the sentence, but that I might retain it by passing an examination. (Before whom? I should like to know.) I replied that I was not arrogating to myself any such *dignity*, and that I ridiculed the idea of a subscription having ever entitled a person to pass muster as a clever man. I called the attention of the Council to the fact that my predecessor, whose name was still on the lamp and in the windows, was a member of the Pharmaceutical Society, and informed them further that I had not yet painted the place. I had the sentence erased; but, in spite of that, not having adopted their suggestion as to becoming a member, they sued me for the penalty, and felt perfectly satisfied of squeezing out of me the £5 aforesaid and costs.

I intended to have raised the following questions, had the opportunity occurred. 1st. Whether the Registrar was duly appointed under the Act? 2nd. Whether the Royal Society of Pharmacy could be said to mean the Pharmaceutical Society? 3rd. Whether all Chemists who faithfully prepare their medicines from the Pharmacopœia, are not Pharmaceutical Chemists? 4th. Whether the summons was not premature, the cause of offence having been obliterated before receipt of summons?

Now, I make bold to assert that the Registrar is *not* duly appointed under the Act, and that *all* Chemists have a right to call themselves "Pharmaceutical Chemists;" and these appear to me to be points that ought to be put right, at once and for all. These points the judge did not take into consideration, as he considered that the Pharmaceutical Jackals had been premature in pouncing upon me; so for once this most respectable society of old women, and

pretentious humbugs, had the pleasure of being beaten, and of paying their own and my costs. As no report of the case appeared in the papers, the inference is that the Pharmaceutical Council bought over the Press for the nonce, that their diminished heads might not be covered with ridicule. However, I hope, Sir, through you to let the world know of their underhand acts. Yours obediently,

WM. ROBERTSON.

[We advise Mr. Robertson, and other correspondents, to state their grievances and explain their views in temperate language. Abuse and invective always weaken an argument. We have never been dazzled by the shining lights of Bloomsbury-square, but we cannot accept Mr. Robertson's estimate of them as a just one. Again, the idea that the Press is to be bought over so easily is one that ought not for a moment to be entertained. We hope our correspondent will never attempt to purchase the silence of newspaper reporters, for his own sake. The letter which we have printed is, however, a very important one, and will doubtless open the eyes of many to the doings of that quiet and select body which professes to think only of the promotion of scientific education in the trade.—ED. C. & D.]

## NOTES AND QUERIES

*Errata. An Anonymous Friend.*—Last month's "Notes and Queries" accidentally went to the press uncorrected, and three little errors disfigure page 86 in consequence of this oversight.—For "permanganate" the compositor has put "permanganato;" for "gutt.," "guth;" and for "℥ss.," "ʒsss." These misprints have given a good-natured correspondent a pretext for insulting us. His letter which, we give below, is worth preserving, if only to show how dangerous it is for people living in glass houses to throw stones :—

"Sir—Allow me as one anxious for the success of a valuable periodical to suggest the the (*sic*) propriety of submitting the proof of prescriptions published in the "C. and D." to the *nearest* tyro for correction. "Guth." for "Gutt." "ʒsss" for "℥ss" are errors to (*sic*) obvious to be passed over by one who has spent the shortest time behind a retail counter. Although you profess to ignore the name I sign myself "ANONYMOUS."

Misprints are excusable, and are to be found in the most carefully printed works. In newspapers and magazines they are unavoidable. The substitution of the preposition *to* for the adverb *too* in plain writing is a very different sort of blunder, as it indicates gross ignorance. We advise our anonymous friend to submit his letters to the nearest ragged-school-boy for correction. We should like to hear him conjugate the verb *to obvious*.

*Tender Feet* (W. S.)—We are unable to give you the information you require. You should never wear cotton stockings or socks, goloshes, or stiff or tight boots. The soft woollen socks knitted in Wales are peculiarly well suited for tender feet. Buckskin or goatskin shoes are recommended.

*Works on Diseases and their Treatment* (F. W. J. and "Contributor.")—We will give a list of the principal works and point out their special features in our next.

*Soothing Powders* (W. H. B.)—The label would undoubtedly require a stamp.

*Agricultural Chemistry* (E. J. H.)—Johnston's "Agricultural Chemistry and Geology," published by Blackwood and Sons, is an admirable little elementary work.

*New Remedies.*—Owing to the serious illness of a valued contributor, we are unable to give any special articles on New Remedies this month.

### NOTES RELATING TO THE MANAGEMENT OF OUR JOURNAL.

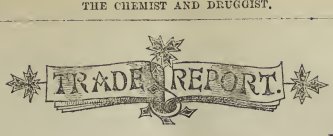
*Queries.*—We cannot undertake to attend to those which are anonymous, or to send answers through the post.

*Correspondence.*—All communications should be addressed to the Editor, at 24, Bow LANE, E.C.; those intended for publication should be accompanied by the real names and addresses of the writers.

*Subscription.*—The subscription to our Journal is *5s.* per annum, payable in advance. Should a receipt be required, a stamped envelope must be sent with the amount of subscription. A specimen number may be had upon application, price *6d.*

*Post-Office Orders.*—Post-Office Orders to be made payable at the General Post Office to the Publisher, JAMES FIRTH, who is alone authorised to receive accounts.

*Advertisers are particularly requested to write their names and addresses very distinctly, to prevent errors and disappointment.*




London, April 13.

In Chemicals a fair business has been transacted in the month; but during the last week sales have been small, and previous prices are barely supported. A large business has been done in Alum, the latest sales at £7 in large casks. A moderate business in Tartaric Acid at 1*s.* 6¼*d.* Several small sales in Citric Acid at 1*s.* 6¾*d.* The makers have advanced the price of Bichromate of Potass to 7¾*d.* to 8*d.*, but little has been done. Prussiate of Potass remains quiet at 11¾*d.* to 12*d.* Some sales in Sal Acetos have been made at 10¼*d.* to 10¾*d.* Chlorate of Potass moves off steadily at 12*d.* to 12½*d.* Iodine continues dull, and the prices of 3½*d.* to 4*d.* are almost nominal. A fair business done in Soda Ash at 2*d.* Sales have been made in Sulphate of Quinine at 6*s.* 6*d.* to 7*s.* More doing in Cream Tartar at 115*s.* to 117*s.* 6*d.* Bicarbonate is in better demand; several parcels sold at 13*s.* Bleaching Powder sells more freely at 10*s.* Sales are more freely made in Chlorate of Lime at 9*s.* 6*d.* Sal Ammoniac is quiet at 35*s.* 6*d.* and 37*s.* 6*d.*, according to quality. Flour of Brimstone is dull at 11*s.* 6*d.* to 12*s.* Small sales in Sulphate of Copper at 31*s.* to 32*s.* Sulphate of Ammonia steady at 14*s.* 3*d.* to 15*s.* Resin is more in demand, and nearly all on offer has been cleared off the market at better prices. Turpentine has continued dull, and prices are scarcely so well supported. French is now 97*s.*, and American 112*s.*; also French for May delivery at 94*s.* Petroleum is rather better: sales of Refined have been made at 1*s.* 7*d.* to 1*s.* 8*d.*, and Crude at £13 to £13 5*s.* Linseed Oil is rather cheaper, and only a small business doing; on the spot the closing prices are 42*s.* 3*d.*; Hull 41*s.* 6*d.* to 41*s.* 9*d.*, and last six months 39*s.* 6*d.* Rape is also lower, and little doing. Foreign Brown is 50*s.*, and Refined 53*s.* to 54*s.* Ashes are without change.

The business done in Drugs has been larger this month, the trade having bought more readily at reduced prices. Large sales of Castor Oil have been made at a decline of ¼*d.* to ½*d.* New Seconds to good pale Firsts 4¾*d.* to 5¾*d.* and 6*d.* Oil of Cassia is dull; the last sales were at 7*s.* 11*d.* to 8*s.* Oil Aniseed is cheaper, 5*s.* 6*d.* to 5*s.* 7*d.* Camphor is again dearer, and in good demand; the last sales were at £8 2*s.* 6*d.* for Japan, and £7 17*s.* 6*d.* to £8 for China. Cape Aloes are 1*s.* to 2*s.* lower; good and fine brought 44*s.* to 47*s.* Balsam Capivi sold at 1*s.* 5*d.* to 1*s.* 6*d.*, which are also rather lower prices. A parcel of good and fine Turkey Opium was bought in at 17*s.* to 19*s.* 6*d.* Small sales of Bombay Senna have been made at 2¼*d.* to 3½*d.*, and Alexandria 7*d.* to 7¾*d.* Jalap is dull at 4*s.* 5*d.* to 4*s.* 6*d.* A few lots of Ipecacuanha sold at 6*s.* 5*d.* to to 6*s.* 6*d.* Some Soccotrine Aloes realized £6 to £14 10*s.*, which were rather lower prices. Malabar Cardamoms steady. Some common Roll Annatto sold at 4*d.* to 4½*d.*

## PRICE CURRENT.

☞ *These quotations are the latest for* ACTUAL SALES *in Mincing Lane. It will be necessary for our retail subscribers to bear in mind that they cannot, as a rule, purchase at the prices quoted, inasmuch as these are the* CASH PRICES IN BULK. *They will, however, be able to form a tolerably correct idea of what they ought to pay.*

| | 1863. | | 1862. | | | 1863. | | 1862. | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | s. | d. | s. | d. | | s. | d. | s. | d. | |
| ARGOL, Cape, pr ct. | 85 | 0 | 102 | 6 | BRIMSTONE, | | | | | |
| French ..... | 40 | 0 | 60 | 0 | rough.....per ton | 125 | 0 | 0 | 0 | 145 |
| Oporto, red ..... | 45 | 0 | 48 | 0 | roll..... | 185 | 0 | 0 | 0 | 270 |
| Sicily..... | 70 | 0 | 78 | 0 | flour..... | 230 | 0 | 240 | 0 | 300 |
| Naples, white..... | 65 | 0 | 80 | 0 | CHEMICALS, | | | | | |
| Florence, white... | 90 | 0 | 97 | 6 | Acid—Acetic, pr lb. | 0 | 3½ | 0 | 4 | 0 |
| red.... | 80 | 0 | 85 | 0 | Citric ..... | 1 | 6½ | 0 | 0 | 1 |
| Bologna, white.... | 110 | 0 | 115 | 0 | Nitric ..... | 0 | 4 | 0 | 5½ | 0 |
| ARROWROOT, | | | | | Oxalic..... | 0 | 8 | 0 | 8½ | 0 |
| duty 4½ per cwt. | | | | | Sulphuric .... | 0 | 0½ | 0 | 0 | 0 |
| Bermuda ...per lb. | 1 | 4 | 1 | 8 | Tartaric cryst | 1 | 6½ | 0 | 0 | 1 |
| St. Vincent..... | 0 | 4 | 0 | 6½ | powdered. | 1 | 6½ | 1 | 7½ | 1 |
| Jamaica. ..... | 0 | 4½ | 0 | 6½ | Alum .....per ton. | 145 | 0 | 150 | 0 | 130 |
| Other West India. | 0 | 3 | 0 | 5 | powder ..... | 150 | 0 | 0 | 0 | 145 |
| Brazil..... | 0 | 2 | 0 | 3½ | Ammonia. Crb. lb. | 0 | 5 | 0 | 5½ | 0 |
| East India..... | 0 | 2½ | 0 | 4½ | Sulphate per ton | 280 | 0 | 300 | 0 | 270 |
| Natal..... | 0 | 5½ | 0 | 9½ | Antimony, ore.... | 200 | 0 | 230 | 0 | 260 |
| Sierra Leone..... | 0 | 3½ | 0 | 5 | crude, per cwt | 24 | 0 | 28 | 0 | 24 |
| ASHES.....per cwt. | | | | | regulus ..... | 43 | 0 | 43 | 6 | 46 |
| Pot, Canada, 1st sort | 32 | 6 | 0 | 0 | French star.... | 43 | 0 | 0 | 0 | 47 |
| Pearl, do. 1st sort. | 32 | 6 | 0 | 0 | Arsenic, lump.... | 16 | 6 | 17 | 0 | 17 |

| | 1862. | |
|---|---|---|
| | s. | d. |
| BRIMSTONE, | | |
| rough.....per ton | 145 | 0 |
| roll..... | 270 | 0 |
| flour..... | 300 | 0 |
| CHEMICALS, | | |
| Acid—Acetic, pr lb. | 0 | 4½ |
| Citric ..... | 1 | 9 |
| Nitric ..... | 0 | 4 |
| Oxalic..... | 0 | 9 |
| Sulphuric .... | 0 | 0 |
| Tartaric cryst | 1 | 1 |
| powdered. | 1 | 0 |
| Alum .....per ton. | 135 | 0 |
| powder ..... | 145 | 0 |
| Ammonia. Crb. lb. | 0 | 5½ |
| Sulphate per ton | 270 | 0 |
| Antimony, ore.... | 260 | 0 |
| crude, per cwt | 24 | 0 |
| regulus ..... | 46 | 0 |
| French star.... | 47 | 0 |
| Arsenic, lump.... | 17 | 0 |

PRICE CURRENT—*continued.*

| CHEMICALS. | 1863. s. | d. | s. | d. | 1862. s. | d. | s. | d. |
|---|---|---|---|---|---|---|---|---|
| Arsenic powder .. | 6 | 6 | .. 7 | 0 | 8 | 3.. | 10 | 0 |
| Bleaching Powder. | 9 | 6 | ..10 | 0 | 9 | 0.. | 9 | 6 |
| Borax, E. I. refnd | 52 | 6 | .. 0 | 0 | 52 | 6.. | 0 | 0 |
| British..... | 50 | 0 | ..52 | 0 | 64 | 6..65 | 0 | 0 |
| Calomel....per lb. | 2 | 2 | .. 0 | 0 | 2 | 10.. | 0 | 0 |
| Camphor, refined. | 2 | 1 | .. 2 | 4 | 2 | 8.. | 2 | 10 |
| Copras. grn. pr. tn. | 57 | 6 | ..60 | 0 | 65 | 0.. | 0 | 0 |
| Crrsiv. Sublmte. lb | 1 | 11 | .. 0 | 0 | 1 | 11.. | 2 | 0 |
| Green Emrld.pr.lb | 0 | 0 | .. 0 | 0 | 0 | 9.. | 0 | 11 |
| Brunswk. cwt. | 0 | 0 | .. 0 | 0 | 14 | 0.. | 42 | 0 |
| Iodine, dry, pr. oz. | 0 | 3½ | .. 0 | 4 | 0 | 5½ | 0 | 6 |
| Magnesia Crbn. ct. | 42 | 6 | ..45 | 0 | 42 | 6..45 | 0 | 0 |
| Calcined, lb.. | 1 | 6 | .. 1 | 8 | 1 | 6.. | 0 | 0 |
| Minium red.pr.ct. | 22 | 0 | ..22 | 6 | 21 | 6..23 | 0 | 0 |
| orange..... | 32 | 0 | ..33 | 0 | 34 | 0.. | 0 | 0 |
| Ptsh. Bichrom. lb. | 0 | 7½ | .. 0 | 8 | 0 | 8½ | 0 | 8½ |
| Chlorate..... | 1 | 0 | .. 1 | 0½ | 0 | 10½ | 0 | 0 |
| Hydriodate oz. | 0 | 4½ | .. 0 | 5 | 0 | 5 | 0 | 5½ |
| Prussiate ..lb. | 0 | 11½ | .. 1 | 0 | 1 | 0½ | 1 | 1 |
| red.. | 2 | 1 | .. 2 | 2 | 2 | 2.. | 0 | 0 |
| Precipit. red pr. lb | 2 | 9 | .. 0 | 0 | 2 | 9.. | 2 | 10 |
| white... | 2 | 9 | .. 2 | 10 | 2 | 10.. | 0 | 0 |
| Prussian Blue..... | 1 | 0 | .. 1 | 10 | 1 | 6.. | 1 | 10 |
| Rose Pink....pr ct. | 29 | 0 | .. 0 | 0 | 29 | 0..30 | 0 | 0 |
| Sal-Acetos...pr lb. | 0 | 10 | .. 0 | 10½ | 0 | 10½ | 0 | 11 |
| Ammoniac, ct. British... | 35 | 0 | ..37 | 6 | 36 | 0..38 | 0 | 0 |
| Epsom..... | 8 | 0 | .. 8 | 6 | 8 | 3.. | 8 | 6 |
| Glauber ..... | 5 | 0 | .. 5 | 6 | 5 | 6.. | 0 | 0 |
| Soda, Ash, pr deg.. | 0 | 2 | .. 0 | 0 | 0 | 2½ | 0 | 2¾ |
| Bicarbonate..ct. | 12 | 6 | ..13 | 0 | 12 | 0..13 | 0 | 0 |
| Crystals per ton. | 105 | 0 | .. 0 | 0 | 90 | 0..95 | 0 | 0 |
| Sgr. Lead, white, ct. | 37 | 0 | .. 0 | 0 | 37 | 0..38 | 0 | 0 |
| brown..... | 25 | 0 | .. 0 | 0 | 28 | 0.. | 0 | 0 |
| Slphte. Quinine oz Britsh in bttl. | 7 | 0 | .. 0 | 0 | 8 | 6.. | 0 | 0 |
| Foreign ..... | 6 | 6 | .. 0 | 0 | 7 | 9.. | 0 | 0 |
| Sulpht. Zinc..cwt. | 14 | 6 | ..15 | 0 | 14 | 6..15 | 0 | 0 |
| Verdigris..... lb. | 1 | 1 | .. 1 | 2 | 1 | 1.. | 1 | 5 |
| Vermillion, English | 2 | 8 | .. 3 | 1 | 3 | 0.. | 3 | 4 |
| China .. | 2 | 2 | .. 2 | 4 | 2 | 6.. | 2 | 8 |
| Vtrl. blue or Romn. per cwt. | 31 | 0 | ..33 | 6 | 33 | 0..35 | 0 | 0 |
| COCHINEAL, pr. lb. | | | | | | | | |
| Honduras, black.. | 2 | 6 | .. 4 | 2 | 2 | 10.. | 4 | 0 |
| silver... | 1 | 4 | .. 3 | 4 | 1 | 6.. | 3 | 6 |
| Mexican, black... | 2 | 7 | .. 3 | 0 | 2 | 6.. | 2 | 9 |
| silver .. | 2 | 6 | .. 2 | 7 | 2 | 6.. | 2 | 7 |
| Lima ..... | 2 | 7 | .. 3 | 2 | 2 | 7.. | 3 | 1 |
| Teneriffe, black .. | 2 | 7 | .. 3 | 2 | 2 | 8.. | 3 | 2 |
| silver .. | 2 | 6 | .. 2 | 8 | 2 | 8.. | 2 | 10 |
| DRUGS, | | | | | | | | |
| Aloes, Hepatic, ct. | 130 | 0 | 200 | 0 | 130 | 0 | 190 | 0 |
| Socotrine .... | 220 | 0 | 380 | 0 | 150 | 0 | 480 | 0 |
| Cape, good.... | 41 | 0 | ..42 | 0 | 38 | 0..42 | 0 | 0 |
| inferior. | 26 | 0 | ..40 | 0 | 29 | 0..36 | 0 | 0 |
| Barbadoes.... | 60 | 0 | 360 | 0 | 60 | 0 | 420 | 0 |
| Ambergris, gray. per oz.. | 15 | 0 | ..18 | 0 | 35 | 0..38 | 0 | 0 |
| Angelica Root, ct.. | 30 | 0 | ..35 | 0 | 20 | 0..35 | 0 | 0 |
| Aniseed, China str. | 100 | 0 | 105 | 0 | 70 | 0..80 | 0 | 0 |
| German, &c. | 19 | 0 | ..38 | 0 | 22 | 0..40 | 0 | 0 |
| Balsam Canada, lb | 1 | 2 | .. 1 | 3 | 1 | 4.. | 0 | 0 |
| Capivi..... | 1 | 5 | .. 1 | 6 | 1 | 8.. | 1 | 9 |
| Peru..... | 4 | 10 | .. 0 | 0 | 4 | 6.. | 4 | 7 |
| Tolu ..... | 3 | 10 | .. 0 | 0 | 3 | 10.. | 0 | 0 |
| Bark Cascarilla ct. | 23 | 0 | ..40 | 0 | 24 | 0..49 | 0 | 0 |
| Peru crown & grey per lb ..... | 0 | 10 | .. 2 | 2 | 1 | 2.. | 2 | 6 |
| Calisaya, flat.. | 3 | 3 | .. 4 | 0 | 4 | 4.. | 4 | 6 |
| quill.... | 3 | 0 | .. 3 | 9 | 3 | 10.. | 4 | 2 |
| Carthagena... | 1 | 3 | .. 2 | 4 | 1 | 3.. | 2 | 6 |
| Pitayo ..... | 1 | 9 | .. 2 | 6 | 1 | 10.. | 2 | 8 |
| Red ..... | 3 | 0 | .. 7 | 6 | 2 | 6.. | 6 | 0 |
| Bay Berries, pr ct.. | 22 | 0 | ..40 | 0 | 22 | 0..40 | 0 | 0 |
| Bucca Leaves, lb. | 0 | 2½ | .. 1 | 6 | 0 | 3.. | 1 | 3 |
| Camomile Flowers | 35 | 0 | ..65 | 0 | 40 | 0..75 | 0 | 0 |
| Camphor, China .. | 100 | 0 | 182 | 6 | 200 | 0 | 205 | 0 |
| Canella Alba..... | 19 | 0 | ..38 | 0 | 19 | 0..40 | 0 | 0 |
| Cantharides, pr lb. | 2 | 6 | .. 2 | 10 | 2 | 3.. | 2 | 4 |
| Cardamoms. Mlbar. good..... | 6 | 7 | .. 7 | 0 | 5 | 9.. | 6 | 0 |

| DRUGS. | 1863. s. | d. | s. | d. | 1862. s. | d. | s. | d. |
|---|---|---|---|---|---|---|---|---|
| Cardamoms, inferior | 5 | 8 | .. 6 | 6 | 5 | 2.. | 5 | 9 |
| Madras.. | 3 | 6 | .. 6 | 3 | 3 | 10.. | 5 | 4 |
| Ceylon.. | 4 | 9 | .. 5 | 0 | 4 | 8.. | 4 | 10 |
| CassiaFistula pr ct. | 15 | 0 | .. 0 | 61 | 12 | 0.. | 21 | 0 |
| CastorOil, 1stpale, lb | 0 | 5½ | .. 0 | 6 | 0 | 6½ | 0 | 7 |
| second..... | 0 | 4½ | .. 0 | 5½ | 0 | 5½ | 0 | 6½ |
| Infr. & dark | 0 | 4½ | .. 0 | 4½ | 0 | 5½ | 0 | 5½ |
| Bombay. in csks. | 0 | 0 | .. 0 | 0 | 0 | 5.. | 0 | 5½ |
| Castorum ..... | 1 | 2 | ..26 | 0 | 1 | 0.. | 26 | 0 |
| China Root, pr ct. | 10 | 0 | ..15 | 0 | 10 | 0.. | 11 | 0 |
| Coculus Indicus .. | 10 | 0 | ..13 | 0 | 14 | 0.. | 15 | 0 |
| Cod-liver Oil, gal.. | 4 | 2 | .. 6 | 0 | 4 | 9.. | 6 | 0 |
| Clcynth. apple, lb.. | 0 | 8 | .. 1 | 0 | 0 | 7.. | 1 | 0 |
| Colombo Rt. pr ct.. | 15 | 0 | ..48 | 0 | 15 | 0.. | 48 | 0 |
| Cream Tartar, pr ct. French ..... | 115 | 0 | 117 | 6 | 127 | 6 | 130 | 0 |
| Venetian .... | 117 | 6 | 0 | 0 | 0 | 0 | 130 | 0 |
| grey ..... | 110 | 0 | 0 | 0 | 112 | 6 | 115 | 0 |
| brown..... | 97 | 6 | 105 | 0 | 105 | 0 | 115 | 0 |
| Croton Seed ..... | 40 | 0 | ..59 | 0 | 70 | 0 | 80 | 0 |
| Cubebs ..... | 110 | 0 | 115 | 0 | 115 | 0 | 120 | 0 |
| Cummin Seed .... | 27 | 0 | ..35 | 0 | 45 | 0.. | 48 | 0 |
| Dragon's blld. reed. | 200 | 0 | 300 | 0 | 200 | 0 | 240 | 0 |
| lump... | 95 | 0 | 260 | 0 | 130 | 0 | 200 | 0 |
| Galangal Root.... | 24 | 0 | ..32 | 0 | 20 | 0.. | 23 | 0 |
| Gentian Root .... | 21 | 0 | ..52 | 0 | 17 | 0.. | 19 | 0 |
| Guinea Grains.... per cwt. | 47 | 0 | ..50 | 0 | 52 | 0.. | 53 | 0 |
| Honey, Narbonne. | 60 | 0 | ..80 | 0 | 60 | 0.. | 85 | 0 |
| Cuba ..... | 24 | 0 | ..36 | 0 | 28 | 0.. | 36 | 0 |
| Jamaica .... | 26 | 0 | ..75 | 0 | 26 | 0.. | 65 | 0 |
| Ipecacuanha,pr lb. | 6 | 6 | .. 7 | 0 | 6 | 6.. | 7 | 0 |
| Isinglass, Brazil... | 0 | 10 | .. 1 | 10 | 10 | 0.. | 1 | 10 |
| East India.... | 0 | 9 | .. 3 | 0 | 0 | 6.. | 3 | 0 |
| West India .... | 3 | 0 | .. 3 | 0 | 3 | 0.. | 3 | 7 |
| Russian..... | 9 | 6 | ..13 | 0 | 11 | 6.. | 13 | 0 |
| Jalap ..... | 1 | 0 | .. 4 | 8 | 1 | 9.. | 5 | 0 |
| Juiper Berries cwt. Germany & Dutch | 8 | 0 | .. 9 | 0 | 9 | 0.. | 11 | 0 |
| Italian ..... | 8 | 0 | ..10 | 0 | 10 | 0.. | 12 | 0 |
| LmonJuice, pr deg. | 0 | 0½ | .. 0 | 0 | 0 | 0½ | 0 | 0⅝ |
| Liquorice, per cwt. Spanish ..... | 83 | 0 | ..90 | 0 | 83 | 0.. | 90 | 0 |
| Italian ..... | 85 | 0 | ..95 | 0 | 85 | 0.. | 95 | 0 |
| Manna, flaky ..... | 3 | 0 | .. 3 | 6 | 2 | 6.. | 0 | 0 |
| small .... | 1 | 6 | .. 0 | 0 | 1 | 6.. | 1 | 9 |
| Musk.....per oz. | 18 | 0 | .. 28 | 0 | 25 | 0.. | 34 | 0 |
| Nux Vomica..... | 9 | 0 | ..11 | 0 | 8 | 0.. | 9 | 0 |
| Opium, Turkey .. | 16 | 0 | ..19 | 6 | 14 | 0.. | 15 | 6 |
| Egyptian... | 7 | 0 | ..12 | 0 | 6 | 0.. | 11 | 0 |
| Orris Root, pr cwt. | 26 | 0 | ..28 | 0 | 27 | 0.. | 29 | 0 |
| Pink Root, per lb.. | 3 | 0 | .. 3 | 3 | 1 | 9.. | 2 | 2 |
| Quassia(bit.wd)ton | 90 | 0 | 100 | 0 | 70 | 0.. | 80 | 0 |
| Rhatania Root, lb. | 0 | 9 | .. 1 | 3 | 0 | 5.. | 0 | 8 |
| Rhrb. China, rnd. | 1 | 3 | .. 4 | 4 | 4 | 9.. | 2 | 10 |
| flat .... | 1 | 9 | .. 4 | 6 | 1 | 3.. | 3 | 0 |
| Dutch, trmd. | 5 | 6 | .. 6 | 0 | 3 | 6.. | 4 | 0 |
| Russian .... | 12 | 6 | ..13 | 0 | 11 | 6.. | 0 | 0 |
| Saffron, Spanish .. | 37 | 0 | ..39 | 0 | 45 | 0..46 | 0 | 0 |
| Salep ....per cwt. | 140 | 0 | 160 | 0 | 170 | 0 | 190 | 0 |
| Sarsaparilla, Lima | 0 | 10 | .. 1 | 4 | 0 | 10.. | 1 | 3 |
| Para .... | 0 | 9 | .. 1 | 1 | 0 | 10.. | 1 | 2 |
| Honduras. | 0 | 8 | .. 1 | 3 | 0 | 11.. | 1 | 4 |
| Jamaica.. | 1 | 2 | .. 2 | 2 | 1 | 3.. | 2 | 4 |
| Sassafras..per cwt. | 0 | 0 | .. 0 | 0 | 11 | 0..12 | 0 | 0 |
| Scammony, per lb. virgin.... | 27 | 0 | ..54 | 0 | 28 | 0..86 | 0 | 0 |
| second .. | 14 | 0 | ..24 | 0 | 14 | 0..24 | 0 | 0 |
| Seneka Root..... | 4 | 6 | .. 4 | 9 | 2 | 4.. | 2 | 6 |
| Senna, Calcutta .. | 0 | 0 | .. 0 | 0 | 0 | 1½ | 0 | 2½ |
| Bombay .... | 0 | 2½ | .. 0 | 4½ | 0 | 2 | 0 | 3¾ |
| Tinnevelly.. | 0 | 4 | .. 1 | 6 | 0 | 2½ | 1 | 6½ |
| Alexandria | 0 | 5 | .. 0 | 8 | 0 | 3.. | 0 | 6 |
| Snake Root ..... | 3 | 6 | .. 3 | 9 | 1 | 10.. | 2 | 0 |
| Spermaceti, refined | 1 | 0 | .. 1 | 2 | 1 | 0.. | 1 | 2 |
| Squilla ..... | 0 | 1 | .. 0 | 2½ | 0 | 1.. | 0 | 2 |
| Tamarinds, E. Ind. | 10 | 0 | ..13 | 6 | 10 | 6..13 | 0 | 0 |
| W.I.per cwt. | 18 | 0 | ..34 | 0 | 15 | 0..30 | 0 | 0 |
| Valerian Root, Eng | 20 | 0 | ..40 | 0 | 20 | 0..40 | 0 | 0 |
| Terra Japonica— Gambier, cwt .. | 20 | 0 | ..26 | 0 | 17 | 0..17 | 9 | |
| Cutch, cwt .... | 24 | 6 | ..25 | 6 | 26 | 6..28 | 6 | |

## PRICE CURRENT—*continued.*

| | 1863. | | | 1862. | | |
|---|---|---|---|---|---|---|
| DRUGS | s. | d. | s. d. | s. | d. | s. d. |
| Vanilla, Mexican lb | 25 | 0 | ..55 0 | 20 | 0 | ..55 0 |
| Wormseed, pr cwt. | 2 | 0 | .. 0 0 | 2 | 0 | .. 0 0 |
| GUM ..... per cwt. | | | | | | |
| Ammoniac, drop.. | 100 | 0 | 120 0 | 90 | 0 | 120 0 |
| lump .. | 15 | 0 | ..65 0 | 15 | 0 | ..70 0 |
| Animi, fine pale .. | 220 | 0 | 250 0 | 200 | 0 | 220 0 |
| bold amber. | 190 | 0 | 210 0 | 220 | 0 | 270 0 |
| medium.... | 160 | 0 | 180 0 | 160 | 0 | 180 0 |
| small & dark | 100 | 0 | 155 0 | 120 | 0 | 160 0 |
| ordinry dark | 50 | 0 | ..95 0 | 40 | 0 | ..90 0 |
| Arab.E.I.f.palepkd | 52 | 0 | ..59 0 | 50 | 0 | ..57 0 |
| unsortd,good to f | 34 | 0 | ..48 0 | 32 | 0 | ..45 0 |
| red and mixed | 20 | 0 | ..30 0 | 28 | 0 | ..30 0 |
| siftings ..... | 15 | 0 | ..30 0 | 18 | 0 | ..23 0 |
| Turkey, pkd.gdto f. | 115 | 0 | 150 0 | 110 | 0 | 160 0 |
| second & inftr. | 40 | 0 | 110 0 | 48 | 0 | 105 0 |
| in sorts ..... | 32 | 0 | ..50 0 | 30 | 0 | ..42 0 |
| Gedda..... | 24 | 0 | ..26 0 | 28 | 0 | ..29 0 |
| Barbary, white .. | 39 | 0 | ..50 0 | 34 | 0 | ..38 0 |
| brown .. | 27 | 0 | ..39 0 | 26 | 0 | ..28 0 |
| Australian..... | 23 | 0 | ..25 0 | 26 | 0 | ..28 0 |
| Assafœt. fr. to gd. | 30 | 0 | 112 0 | 36 | 0 | 110 0 |
| Benjamin, 1st.qual. | 350 | 0 | 630 0 | 360 | 0 | 660 0 |
| 2nd qual | 280 | 0 | 300 0 | 160 | 0 | 350 0 |
| 3rd ,, | 50 | 0 | 200 0 | 60 | 0 | 150 0 |
| Copal, Angola red. | 95 | 0 | 100 0 | 100 | 0 | 125 0 |
| pale. | 85 | 0 | 100 0 | 95 | 0 | 105 0 |
| Benguela.... | 85 | 0 | 100 0 | 105 | 0 | 140 0 |
| Sierra Lne lb | 0 | 5 | .. 1 6 | 0 | 9 | .. 1 9 |
| Manilla pract | 20 | 0 | ..44 0 | 20 | 0 | ..48 0 |
| Dammar ple. pr cwt. | 36 | 0 | ..48 0 | 40 | 0 | ..50 0 |
| Galbanum..... | 100 | 0 | 120 0 | 100 | 0 | 120 0 |
| Gmbge. pkd. pipe | 160 | 0 | 190 0 | 140 | 0 | 180 0 |
| in sorts.... | 90 | 0 | 150 0 | 80 | 0 | 110 0 |
| Guaiacum ..pr. lb. | 0 | 0 | .. 0 6 | 0 | 0 | .. 0 7 |
| Kino ....per cwt. | 180 | 0 | 260 0 | 200 | 0 | 220 0 |
| Kowrie..... | 36 | 0 | ..46 0 | 25 | 0 | ..30 0 |
| Mstic. pkd. pr lb.. | 5 | 0 | .. 5 3 | 0 | 0 | .. 6 6 |
| Myrrh gd & ii pr ct | 150 | 0 | 170 0 | 160 | 0 | 180 0 |
| in sorts..... | 70 | 0 | 130 0 | 70 | 0 | 150 0 |
| Oliganum, pl. drop | 60 | 0 | ..67 6 | 52 | 0 | ..70 0 |
| ambr & yel. | 45 | 0 | ..56 0 | 44 | 0 | ..55 0 |
| mixd. & dk. | 16 | 0 | ..35 0 | 12 | 0 | ..35 0 |
| Senegal ..... | 48 | 0 | ..50 0 | 38 | 0 | ..40 0 |
| Sandrac ..... | 85 | 0 | 110 0 | 80 | 0 | 105 0 |
| Tragacanth, leaf.. | 180 | 0 | 300 0 | 180 | 0 | 320 0 |
| in sorts. 100 | 0 | | 130 0 | 100 | 0 | 130 0 |
| OILS ..... per tun. | £ | s. | £ s. | £ | s. | £ s. |
| Seal ..... | 42 | 0 | ..47 10 | 35 | 0 | ..41 0 |
| Sperm., body..... | 92 | 0 | ..82 10 | 92 | 10 | ..96 0 |
| Cod..... | 47 | 10 | ..48 0 | 39 | 0 | .. 0 0 |
| Whale, Greenland. | 0 | 0 | .. 0 0 | 0 | 0 | .. 0 0 |
| 8th Sea pale | 42 | 0 | ..44 0 | 35 | 10 | .. 0 0 |
| S. I. Fish.. | 33 | 0 | ..34 0 | 30 | 0 | ..31 10 |
| Olive, Galipoli, ton. | 58 | 10 | .. 0 0 | 56 | 10 | ..57 0 |
| Florence, ¼-chst. | 1 | 0 | .. 1 2 | 20 | 0 | ..22 0 |
| Cocoant. Cochn. tn | 53 | 0 | ..53 6 | 49 | 6 | ..50 9 |
| Ceylon .... | 50 | 0 | ..50 6 | 48 | 6 | .. 0 0 |
| Ordney .. | 42 | 0 | ..49 0 | 43 | 0 | ..48 6 |
| Ground Nut & Gin. | | | | | | |
| Bombay..... | 47 | 10 | .. 0 0 | 44 | 10 | ..45 0 |
| Madras ..... | 49 | 0 | .. 0 0 | 45 | 10 | .. 0 0 |
| Palm, fine..... | 37 | 0 | ..37 6 | 41 | 0 | ..41 10 |
| Linseed ..... | 42 | 5 | .. 0 0 | 36 | 0 | .. 0 0 |
| Rapesd. Engl. pale | 52 | 10 | ..53 0 | 47 | 10 | .. 0 0 |
| brown..... | 50 | 0 | .. 0 0 | 45 | 0 | .. 0 0 |
| Foreign do .. | 53 | 10 | ..54 0 | 47 | 0 | ..48 0 |
| brown..... | 49 | 0 | .. 0 0 | 45 | 3 | .. 0 0 |
| Lard ..... | 49 | 0 | .. 0 0 | 51 | 0 | .. 0 0 |
| Tallow ..... | 39 | 0 | ..40 0 | 37 | 0 | .. 0 0 |
| Rock Crude ..... | 8 | 0 | ..13 5 | 0 | 0 | .. 0 0 |
| OILS, Essential— | *s.* | *d.* | *s. d.* | *s.* | *d.* | *s. d.* |
| Almond essen. lb. | 19 | 0 | .. 0 0 | 10 | 0 | .. 0 0 |
| expressed .. | 0 | 0 | .. 0 0 | 1 | 0 | .. 0 0 |
| Aniseed ..... | 5 | 6 | .. 5 7 | 5 | 8 | .. 5 9 |
| Bay ..... pr cwt. | 110 | 0 | 120 0 | 110 | 0 | 120 0 |
| Bergamott. pr lb. | 7 | 0 | ..10 6 | 6 | 6 | ..18 0 |
| Cajeputa, bond, oz. | 0 | 2½ | .. 0 2½ | 0 | 1½ | .. 0 2 |
| Caraway....pr lb. | 4 | 3 | .. 5 6 | 4 | 3 | .. 6 0 |
| Cassia ..... | 7 | 11 | .. 8 0 | 8 | 9 | .. 9 0 |
| Cinamon(in b), oz | 1 | 6 | .. 3 6 | 1 | 0 | .. 4 0 |
| Cinnamon Leaf... | 0 | 2 | .. 0 4½ | 0 | 1 | .. 0 3 |
| Citronel..... | 0 | 0½ | .. 0 6 | 0 | 0½ | .. 0 4½ |

| | 1863. | | | 1862. | | |
|---|---|---|---|---|---|---|
| OILS. | s. | d. | s. d. | s. | d. | s. d. |
| Clove ..... | 0 | 2 | .. 0 4 | 0 | 4 | .. 0 0 |
| Croton ..... | 0 | 0 | .. 0 0 | 0 | 3 | .. 0 4 |
| Juniper ....per lb. | 1 | 10 | .. 3 0 | 1 | 10 | .. 3 0 |
| Lavender ..... | 2 | 6 | .. 4 6 | 2 | 6 | .. 5 0 |
| Lemon ..... | 4 | 0 | .. 9 0 | 5 | 0 | ..10 6 |
| Lemongrass, pr oz | 0 | 6½ | .. 0 7 | 0 | 5 | .. 0 6 |
| Mace, ex ..... | 0 | 1½ | .. 0 2 | 0 | 1½ | .. 0 2 |
| Neroli ..... | 5 | 0 | .. 7 0 | 6 | 0 | .. 9 0 |
| Nutmeg ..... | 0 | 1 | .. 0 2 | 0 | 1 | .. 0 1 |
| Orange ....per lb. | 5 | 0 | .. 6 6 | 6 | 6 | .. 7 0 |
| Otto Roses, per oz | 14 | 0 | ..22 0 | 15 | 0 | ..24 0 |
| Peppermint, pr lb. | | | | | | |
| American ..... | 8 | 0 | ..13 3 | 7 | 0 | ..13 0 |
| English ..... | 33 | 0 | ..34 0 | 33 | 0 | ..38 0 |
| Rhodium ..per oz. | 3 | 6 | .. 5 6 | 3 | 9 | .. 6 0 |
| Rosemary ..per lb. | 1 | 8 | .. 3 0 | 1 | 10 | .. 4 0 |
| Sassafras ..... | 3 | 0 | .. 4 0 | 3 | 6 | .. 4 6 |
| Spearmint..... | 5 | 0 | .. 8 6 | 5 | 0 | ..12 6 |
| Spike ..... | 1 | 3 | .. 1 6 | 1 | 3 | .. 1 6 |
| Thyme ..... | 1 | 9 | .. 2 3 | 1 | 9 | .. 2 6 |
| PITCH, Brtsh, pr cwt. | 12 | 0 | .. 0 0 | 7 | 0 | .. 0 0 |
| Swedish .... | 0 | 0 | .. 0 0 | 10 | 6 | .. 0 0 |
| SALTPETRE, pr cwt. | | | | | | |
| Engl, 6 p.c. or under | 37 | 0 | ..37 6 | 38 | 0 | ..38 6 |
| over 6 per cent. | 35 | 6 | ..36 6 | 37 | 0 | ..37 6 |
| Madras ..... | 34 | 0 | ..36 6 | 36 | 0 | ..37 6 |
| Bombay ..... | 32 | 0 | ..35 0 | 36 | 0 | ..36 6 |
| British-refined.... | 40 | 0 | ..40 6 | 41 | 6 | ..42 0 |
| Nitrate of Soda .. | 13 | 9 | ..14 3 | 14 | 0 | ..14 6 |
| SEED, Canary, pr qr. | 42 | 0 | ..50 0 | 40 | 0 | ..50 0 |
| Caraway, Engl, p.c. | 0 | 0 | .. 0 0 | 28 | 0 | ..28 0 |
| German, &c | 0 | 0 | .. 0 0 | 0 | 0 | .. 0 0 |
| Coriander ..... | 10 | 0 | ..12 0 | 15 | 0 | ..17 0 |
| East India..... | 10 | 6 | ..11 0 | 0 | 0 | .. 0 0 |
| Hemp ..... | 40 | 0 | ..48 0 | 43 | 0 | ..59 0 |
| Linseed, Black Sea | 64 | 6 | ..66 0 | 59 | 0 | .. 0 0 |
| Calcutta ..... | 61 | 0 | ..65 0 | 59 | 0 | ..61 0 |
| Bombay ..... | 67 | 0 | ..68 0 | 65 | 0 | ..66 0 |
| Egyptian ..... | 62 | 0 | ..68 0 | 58 | 0 | ..59 0 |
| Mustard, brn, p. bhl | 7 | 0 | ..13 0 | 7 | 0 | ..13 0 |
| white.. | 7 | 0 | .. 8 6 | 6 | 0 | .. 9 0 |
| Poppy, E.I. per qr. | 60 | 0 | .. 0 0 | 61 | 0 | ..62 0 |
| Rape, English .... | 0 | 0 | .. 0 0 | 0 | 0 | .. 0 0 |
| Danube ..... | 70 | 0 | .. 0 0 | 0 | 0 | ..70 0 |
| Calcutta, fine .. | 67 | 0 | ..69 0 | 66 | 0 | .. 0 0 |
| Bombay..... | 69 | 0 | ..72 0 | 0 | 0 | ..72 0 |
| Teel, Sesme or Ginjy | 68 | 0 | ..72 0 | 65 | 0 | ..68 0 |
| Cotton ....per ton | 180 | 0 | .. 0 0 | 150 | 0 | .. 0 0 |
| Gnd.,Nut kernels, tn | 340 | 0 | 350 0 | 350 | 0 | 360 0 |
| SOAP, Lnd. yel. pr ct. | 92 | 0 | ..86 0 | 81 | 0 | ..86 0 |
| mottled .... | 36 | 0 | ..38 0 | 34 | 0 | ..36 0 |
| curd..... | 50 | 0 | .. 0 0 | 50 | 0 | .. 0 0 |
| Castile ..... | 40 | 0 | ..41 0 | 39 | 0 | ..40 0 |
| Marseilles ..... | 40 | 0 | ..42 0 | 40 | 0 | ..41 6 |
| SOY, China, per gal. | 2 | 1 | .. 2 3 | 2 | 3 | .. 2 7 |
| Japan ..... | 0 | 10 | .. 1 0 | 0 | 8 | .. 0 10 |
| SPONGE, Turk. f. pkd | 20 | 0 | ..24 0 | 20 | 0 | ..24 0 |
| fair to good | 8 | 0 | ..18 0 | 8 | 0 | ..18 0 |
| ordinary.. | 3 | 0 | .. 6 0 | 3 | 0 | .. 6 0 |
| Bahama .. | 0 | 4 | .. 1 3 | 0 | 3 | .. 1 3 |
| TURPENTINE, | | | | | | |
| Rough..per cwt. | 0 | 0 | .. 0 0 | 28 | 0 | .. 0 0 |
| Spirits, French .. | 0 | 0 | ..97 0 | 0 | 0 | .. 0 0 |
| American, inesks | 112 | 0 | .. 0 0 | 83 | 0 | .. 0 0 |
| WAX, Bees, English | 170 | 0 | 175 0 | 172 | 6 | 175 0 |
| German ..... | 162 | 6 | 180 0 | 175 | 0 | 180 0 |
| American ..... | 165 | 0 | 175 0 | 160 | 0 | 170 0 |
| white fine ..... | 0 | 0 | .. 0 0 | 0 | 0 | .. 0 0 |
| Jamaica ..... | 165 | 0 | 180 0 | 175 | 0 | 180 0 |
| Gambia ..... | 170 | 0 | 175 0 | 160 | 0 | 170 0 |
| Mogadore ..... | 120 | 0 | 155 0 | 120 | 0 | 160 0 |
| East India..... | 140 | 0 | 170 0 | 140 | 0 | 170 0 |
| ditto, bleached.. | 170 | 0 | 230 0 | 165 | 0 | 200 0 |
| vegetable, Japan .. | 68 | 0 | ..89 0 | 56 | 6 | ..77 0 |
| WOOD, Dye, per ton, | | | | | | |
| Fustic, Cuba .... | 140 | 0 | 145 0 | 130 | 0 | 155 0 |
| Jamaica ..... | 120 | 0 | 140 0 | 115 | 0 | .. 0 0 |
| Savanilla ..... | 120 | 0 | 125 0 | 100 | 0 | .. 0 0 |
| Zante ..... | 0 | 0 | .. 0 0 | 100 | 0 | 105 0 |
| Logwood, Cmpchy | 180 | 0 | 190 0 | 0 | 0 | 210 0 |
| Honduras ..... | 130 | 0 | 140 0 | 135 | 0 | .. 0 0 |
| St. Domingo. .. | 105 | 0 | 110 0 | 130 | 0 | .. 0 0 |
| Jamaica ..... | 97 | 6 | 100 0 | 110 | 0 | 120 0 |

The abridged Specifications of Patents given below are prepared specially for this Journal by Mr. R. A. Brooman, from official copies supplied by the Government, and are therefore the property of the Proprietor of this Journal. Other papers are requested not to reproduce them without acknowledgment:—

2130. W. Spence. *Improvements in the preparation of a red colouring matter.* (A communication.) Dated July 28, 1862.

This invention has for its object, in the first place, the transformation of phenic or carbolic acid into a red colouring matter; secondly, the transformation of this matter into a fast colouring matter, capable of resisting the action of acids and other agents; and thirdly, the application of this substance to dyeing and printing. The colouring matter is first prepared thus:—The inventor takes about 23 lb. of phenic or carbolic acid, from about 10 to 20 lb. of oxalic acid, and from about 7 to 14 lb. of sulphuric acid. This mixture is heated until the colouring matter is formed of the requisite colour and consistence. When this operation is considered to be finished, the matter is washed with boiling water, in order to remove the excess of acid. It is then in the state of a light pitch, and with a green shade of cantharides. It may be dried and reduced to powder by means of heat, or by a longer process without heat. The matter thus produced is converted into more solid matter by the following process:—The inventor takes about 2½ lb. of this less solid matter, and about 5½ lb. of ammonia of commerce. This mixture is put into a closed metallic vessel, then heated to a temperature of about 270 degrees Fahr. for about three hours. This is allowed to cool, and then the vessel is opened. The matter originally introduced therein becomes completely dissolved in the ammonia, thence yielding a liquor rather thick, and possessed of a considerable colouring matter. This liquor when heated by acids furnishes a deep red precipitate, which is the fast colouring matter modified as required, and which is capable of dyeing red silk, wool, and other textile materials. The matter thus prepared is called "peonine," and is applicable to dyeing and printing generally. *Patent completed.*

2132. W. Spence. *Improvements in the preparation of a blue colouring matter.* (A communication.) Dated July 28, 1862.

For the purposes of this invention, there are taken about five parts of the matter which has been called "peonine" in the specification of a patent granted to the present patentee as a communication from abroad (No. 2130) in the year 1862, and described therein as a red colouring matter prepared from phenic or carbolic acid, and from about 6 to 8 parts of aniline. The mixture is heated to a temperature near to the boiling point, which heating is maintained for some hours, until the material is completely transformed. The result hence obtained is a blue colouring matter, which is purified by successive washings: first, with boiling water acidulated with sulphuric, hydrochloric, or other acids; secondly, with heated coal oil; and thirdly, with a dilute solution of caustic, soda, or potash, or other alkalies. The matter thus obtained is passed into acidulated boiling water, then dried. It is then in a state of powder, with golden shades soluble in alcohol, methyle, and other spirits, and the solutions of which may be used directly for dyeing and printing. The colouring matter thus obtained is called "azuline," and is applicable to dyeing and printing generally. *Patent completed.*

2346. J. Mackay. *Improvements in the manufacture of soap powder.* Dated August 22, 1862.

This invention consists, according to one modification, in combining together the following, or proportional quantities of the following ingredients—viz., 20 cwt. of soda crystals, 1 cwt. of best yellow or pale soap, 1 cwt. of pearl ashes, 1 cwt. of black or pot ashes, 10 to 20 gallons of water, 1 cwt. of soda ash, 7 lb. of palm oil, 7 lb. of sulphuric acid, 7 lb. of sulphate of soda, and 7 lb. of chloride of lime. The ingredients are all mixed together in a boiler, and boiled by means of a direct fire, or by means of steam, for about five hours; after which the compound is spread out in shallow troughs to cool, being continually stirred until cooled. The resulting product is a granular or more or less crystallized powder, in which state it is packed for sale. *Patent completed.*